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Glasgow Medical Journal

Glasgow and West of Scotland Medical Association, Royal
Medico-Chirurgical Society of Glasgow

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THE
GLASGOW MEDICAL JOURNAL.

THE
GLASGOW MEDICAL JOURNAL.

EDITED BY

JOSEPH COATS, M.D.,
JOHN LINDSAY STEVEN, M.D., and
JOHN H. CARSLAW, M.D.,

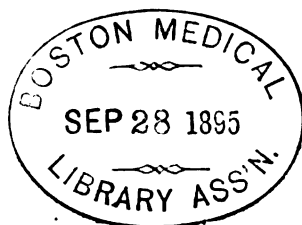
FOR THE

Glasgow and West of Scotland Medical Association.

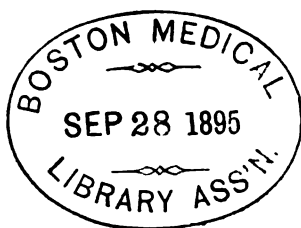
JANUARY TO JUNE, 1895.

VOL. XLIII.

GLASGOW:
ALEX. MACDOUGALL, 81 BUCHANAN STREET.
LONDON: H. K. LEWIS, 136 GOWER STREET.
1895.



3655



THE
GLASGOW MEDICAL JOURNAL.

No. I. JANUARY, 1895.

ORIGINAL ARTICLES.

HÆMATOPORPHYRINURIA FOLLOWING THE ADMINISTRATION OF SULPHONAL—NOTES OF A CASE, WITH REMARKS.¹

By L. R. OSWALD, M.R.,
Assistant Physician, Glasgow Royal Asylum.

RECENT medical literature both of this and other countries has contained a considerable number of references to the presence of hæmatoporphyrin in the urine, to its presence in the course of diverse diseases, and to its presence during the administration of drugs. More especially has it been found in the urine of patients taking sulphonal, and while it has been said that its presence as such does not necessarily seriously influence the health of the patient, there are cases where its occurrence in considerable quantity is accompanied by rapidly developing exhaustion, and often a fatal termination.

In this note it is proposed to describe a case that proceeded to a fatal termination, and from it and from other reported cases to draw some conclusions that seem to be warranted by observed facts.

J. R. or B. was admitted to the Glasgow Royal Asylum in August, 1893, suffering from acute mania of about a fortnight's

¹ Read before the Scottish Branch of the Medico-Psychological Association at Edinburgh, on 8th November.

duration. She had had no previous mental illness, and there was no history of previous severe bodily illness. There was a distinct hereditary predisposition to insanity, and also the presence of marked allied neurosis in her family history. Her bodily condition on admission was good, and there was no evident diseases of thoracic or abdominal organs. Her hands were cedematous and her wrists much bruised in consequence of their having been bound prior to admission. There were a considerable number of bruises on her upper and lower limbs, and it was stated by her friends that she was very easily marked, the firm pressure of the hand being at times sufficient to leave a bruised appearance.

The excitement continued pretty acute during August and September, and at times her condition gave rise to some anxiety lest it should wear her out. She was treated by baths, free nourishment, and abundant open air exercise. To induce sleep she had paraldehyde in doses of from 2 to 3 drs. It acted well, and usually obtained for her five or six hours' sleep. Her excitement took rather a joyous turn, and in her shouting and talking there was often a rhyming incoherency. She had hallucinations of sight, and there was often a strong erotic tendency in her conduct.

Towards the beginning of October, it seemed as if recovery was beginning. She became much quieter, her habits improved, she slept better, and she had days of comparative well being. She was less resistive and impulsive, but extremely variable. About this time it is noted that her urine contained a trace of albumen, but no casts or other abnormal ingredients. When a hypnotic was required she got chloral and bromide.

In November she relapsed. Her habits became depraved and her expression lost intelligence. She was destructive. Hair is noted as having begun to grow on her chin, and with this there was considerable falling out of hair from her head. Albumen again noted as being present in small quantities in her urine, but no other symptom of kidney disease.

Her bodily condition was very good, and she had rather a full-blooded look. Her appetite was ravenous.

In January, 1894, came a burst of great excitement, subsiding somewhat towards the end of February. This was not accompanied by any loss of body weight, and for the sleeplessness she had chloral and bromide. They did not seem to act so well, and on 16th April she had sulphonal for the first time. She was then chronically and pretty continuously excited, rather difficult to manage, and sleeping little. She had also developed aggressive tendencies, and was

apt to be impulsively dangerous to others. The dose of sulphonal given was 15 grains twice daily. This was continued pretty regularly till about the middle of July, but in varying doses. Sometimes she got 15 grains, sometimes 30 grains, depending on her mental condition at the morning visit. About the middle of July she was quieter, and sulphonal was only given rarely, but in the beginning of August it was resumed in 10 grain doses given twice daily, and this was continued till 23rd August, the date of the onset of the fatal illness. It may here be said that during the months of April, May, and June she had 1,800 grains, that there then came a period of three weeks when she had none, and that from 2nd August till 21st August she had 420 grains. In all, she had 2,200 grains of sulphonal. The doses given were not large, and the drug was believed to be acting well and to be suiting her well. It procured sleep, lessened excitement, and calmed the patient, without evident injurious effect.

On the morning of the 24th August she was sick, vomited her breakfast, and complained of abdominal pain, not localised to any area. There was some tenderness round the umbilicus on pressure. No physical sign of any course lesion in the abdomen could be made out. The urine could not be examined, none having been voided since the previous night. Fomentations were applied, and symptomatic treatment ordered. The urine passed on the following morning was found to be scanty and of dark colour. It gave no reaction with guaiac, and contained no bile. It deposited a copious sediment which cleared somewhat on heating, and microscopically was found to contain many altered blood discs.

She retained nothing given to her, but rejected it usually in about half an hour after taking it. The vomited matters were dark in colour, but, unfortunately, the vomit was not further examined either by the microscope or spectroscope. Her temperature in the evening was slightly raised, 99.4° F. She had a restless night, rejecting all food given her, and in the morning her condition had not materially changed. The urine had much the same characters, and the following report of its spectrum was obtained:—

“The colour is evidently due to the presence of hæmatoporphyrin, or of a body closely allied to it. The spectrum is not quite similar to that said to be given by acid solutions, there being no certain band observed at D. Probably other pigments are present. There is no blood as such in the urine, and no bile pigment. In other respects, on the addition of alkalies, the substance behaves like hæmatoporphyrin.”

From the 26th till the 31st she continued in much the same state, the stomach refusing to retain nourishment, and the abdominal pain continuing. She was fed by nutrient suppositories. Her bowels were earlier in the case constipated, but the motions never contained blood. Her mental condition was one of considerable restlessness and incoherency, but she did not apparently suffer much pain. Headache was complained of now and again.

On the morning of the 31st she seemed better, her stomach was less irritable, and she retained a little peptonised milk. Her pulse was fuller, and her urine was amber in colour, there being an entire absence of the claret colour that previously had been so markedly present. There was also a slight increase in the number of blood corpuscles. She retained some nourishment during the day, but had a restless night, and on the following morning she complained of a numb feeling in her hands and feet, and before evening she was unable to move them. Her mental condition was much clearer, and she localised impressions and their character correctly. Common sensation was good, and she distinguished between heat and cold. Late the same evening her breathing became rapid and slightly laboured. The paralysis had increased, the knee jerks were quite gone, and she passed urine and fæces in bed. Complained of no pain. Temperature 99·6° F. Respirations 36. Pulse 84. There was no interference with swallowing or speech.

The following morning she was much the same, but looked anxious. Took and retained nourishment, and was freely stimulated. The abdomen was somewhat distended, and there was little abdominal respiratory movement. She could not move her body or limbs in bed. Breathing became more rapid, and there was again involuntary passage of urine to fæces. Through the day she got gradually weaker, and died shortly after midnight. Temperature before death reached 100° F.

During her illness the blood was examined three times by the hæmocytometer. The first examination showed it to contain 3,520,000 corpuscles; the second, 3,150,000; and the third, 3,250,000. It will be observed that there was a very great decrease in the number of corpuscles, but that some days before death they increased, and apparently the destructive process had stopped.

Taking six days, it was found that the quantities of urine passed were 14, 16, 18, 15, 17, and 23 ounces. The specific gravity varied from 1021 to 1036. The reaction was always

acid, and on every occasion it was examined there was a trace of albumen present. Its colour was usually a very deep claret, sometimes clear, sometimes muddy, and there was a copious dark sediment till two days before death, when the colour of the voided urine was amber, and the sediment was slight. This sediment always gave the blood reaction with guaiac, but not at all in proportion to the amount of disintegrated blood the urine contained, and only on one occasion did the supernatant fluid give the blood reaction, and then it was probably due to an admixture of menstrual blood, a slight flow taking place for a day towards the end of the illness.

Microscopical examination showed, on every occasion except the last, abundant blood discs, much altered in shape, of shrivelled appearance and irregular outline, and not readily forming rouleaux. No tube-casts were ever found, but there was much granular-looking *débris*.

The temperature was only slightly affected, the mean of six morning readings being 98.6° F., and of six evening readings, 99.2° F. Just before death it reached 100° F.

The *post-mortem* examination was made thirty-two hours after death, permission having been obtained with difficulty. It was done by Dr. R. M. Buchanan, who also made a microscopical examination of the liver and kidneys.

The body was well nourished, and there was no extravasation of blood in the tissues, and no bed sores. The heart muscle was soft. Valvular structures normal. Both lungs were adherent at their base. There was old cicatricial puckering of both apices, and in the substance of both upper lobes a caseous focus of tubercular disease was found.

The liver and kidneys were of normal size and consistence, but of a dark red and fleshy appearance. They were much congested, and the blood that exuded from the liver was of a dark colour, almost black. The adrenals were rather larger than usual. The spleen was slightly enlarged, dark coloured, and soft. The stomach and intestines presented nothing of special note, excepting some congestion of the latter in the first part of the duodenum, and at intervals corresponding with the coils. The uterus and appendages presented nothing worthy of special note. There was some blood in the cavity of the former.

The calvarium showed distinct thickening of the internal table, principally at the expense of the diploe. The soft membranes were highly œdematous, and there was a general milky opacity of the arachnoid, more especially along the superior surface of the hemispheres and of the cerebellum.

A careful dissection of the brain failed to reveal any naked eye lesion, and the results of the microscopic examination do not bear on this part of the case.

Dr. Buchanan reports as follows in reference to the microscopical examination of the liver and kidneys:—

"The liver in the fresh state showed a generalised fatty degeneration, the fat being mostly in finely divided form. There is nothing further to be noted from examination made after hardening.

"The kidneys in the fresh state presented a very notable departure from the normal. The renal epithelium was homogeneously granular, and the outlines of the cells and of the nuclei were almost entirely lost. In sections hardened in Müller's fluid, and stained with alum-carmin, the granular appearance of the epithelium is retained; but there is no nuclear staining in the cells of the convoluted tubules (with the exception of a coil here and there), nor in many of the straight tubules. The Malpighian tufts appear normal, excepting a slightly granular condition of their epithelial cells. The connective tissue nuclei have also in great part disappeared, and the same is to be said of those in the vessel walls."

Prior to the beginning of the fatal illness albumen had been noted as present in the urine, and probably the microscopic appearances found in the kidney were due, in part at all events, to previous renal disease. This would undoubtedly be aggravated by the irritative action of the excretion of the hæmatoporphyrin and allied substances, and it has been determined that the injections of the serum of blood containing hæmatoporphyrin produces considerable irritation of the kidneys and changes in the urine.

The peripheral nerves and the spinal cord were not examined.

As has been said, the literature of this subject is already considerable; but, limiting the cases to those in which the occurrence of hæmatoporphyrin in the urine followed, and seemed to be due to the administration of sulphonal, about 40 cases have been reported, and of these over one-half terminated fatally.

Most of the cases had many clinical features in common. They were all women, and the symptoms were vomiting, abdominal pain and pelvic uneasiness, usually constipation, and a marked diminution in the quantity of urine secreted. There was also a great tendency to collapse. The results of

examination of the blood were not uniform. In Dr. Percy Smith's¹ cases the corpuscles were not markedly reduced in number, but in a case reported by Schæfer² it is stated that the corpuscles were much reduced both in number and in amount of contained hæmoglobin. In most of the cases the results of the examination of the blood are not recorded.

Torup³ states that the limbs of one of his cases were weak, but not absolutely paralysed. Hammersten⁴ describes in detail that in one case both legs were paralysed, sensibility was diminished, and tendon reflex absent; and in one of the cases described by Folles⁵ the patient was unable to move her limbs on the day of her death.

In the Gartnaveil case the paralysis was the most prominent clinical symptom for two days before death. The urine was improving in appearance and quantity, and the blood corpuscles were increasing in number; but the paralysis was increasing. It is to be regretted that in most of the published cases no mention of the condition of the reflexes is made.

There seems to have been no relation between the severity of the symptoms and the amount of sulphonal taken, and in several cases hæmatoporphyrin did not appear in the urine till the drug had been stopped for some days. In the case just described, 2,200 grains were given in about 90 days. In other reported cases 8,000 grains were given in 120 days, 800 grains in 40 days, and 400 grains in 25 days.

In many of the cases the urine was carefully examined, but in very few instances was hæmatoporphyrin found alone, there being usually also present urobilin, chromogens, and other pigments whose nature could not be determined.

Post-mortem examinations do not seem to have been made in a great number of the reported cases, and the lesions found throw little light on the subject. Fatty liver was found in two cases and cardiac disease in one. The kidneys in many cases are said to have been normal.

In one of two cases that occurred at the Royal Edinburgh Asylum, marked bronzing of the skin was observed, and at the *post-mortem* the supra-renal capsules were found to be extensively diseased, the change being mainly of a caseous nature.

Another point is, that till serious symptoms such as

¹ *St. Thomas's Hosp. Reports*, vol. xxi.

² *Therapeut. Monatshefte*, February, 1893.

³ Reported by Vaughan Harley, *British Medical Journal*, 1890, p. 1169.

⁴ *Upsala Läkareforen Forhande*, Bd. 26.

⁵ *Internat. Klin. Rundschau*, 1891.

vomiting, altered urine, &c., appeared, the drug seemed to be suiting very well. The usual symptoms following repeated doses were absent, so much so that the patients seemed to be very tolerant of the drug. The case just described, Dr. Percy Smith's and many others, showed after repeated doses no inco-ordination of gait, no speech involvement, and none of the symptoms that indicate that the drug is being pushed to physiological effect.

From the cases published, it must be admitted that the presence of hæmatoporphyrin in the urine in such quantities is directly due to the sulphonal. The *modus operandi* by which sulphonal produces its hypnotic effect is but little understood, but it is known that inoderate doses powerfully influence motor nerves, especially at their terminations in muscles. That being so, it is interesting that in several of the reported fatal cases motor paralysis was the most prominent symptom before death, and that in the Gartnavel case death seemed to take place by a progressive paralysis of the muscles of respiration.

Garrod¹ found hæmatoporphyrin present in the urine of every one of ten patients at Bethlem Hospital who were taking sulphonal, and it may be that its hypnotic action is due to a destructive power it exercises over the blood, setting free in the circulation hæmatoporphyrin and other allied substances which act as hypnotics.

In this connection, it is unfortunate that in most cases the adrenals were not examined. M'Munn states that they are concerned with the downward metabolism of hæmoglobin and with its decomposition products. When they are diseased these products circulate in the blood, and appear in the urine as hæmatoporphyrin and substances allied to it. It seems probable that an explanation of the fatal issue in many of these cases may be found in a cumulative action of the sulphonal affecting the adrenals, leading to a rapid destruction of blood and to such an accumulation of the decomposition products of hæmoglobin, as to give rise to serious effects on the nervous system, and to death.

It is not the intention in this note to enter into the vexed question of the value of sulphonal as a hypnotic, nor to prefer an indictment against it. Like all other hypnotics, the cases for its administration require to be carefully chosen, and that being done, its value cannot be called in question.

In many cases of mental disease the bodily condition is poor and the patients are anæmic. In these it is difficult to see the

¹ *Journal of Pathology and Bacteriology*, vol. i, No. 2.

value of a drug that has been shown to lead to the appearance in variable quantity in the urine of the decomposition products of hæmoglobin. In cases also of *folie circulaire* its administration, while lessening the intensity of the excitement, has seemed to render the stage of well-being less bright and clear intellectually.

As a temporary hypnotic for acute cases in private practice, and as a sedative for chronic and incurable cases of excitement, it is of great service, but its administration requires to be carefully watched, as with little warning symptoms of great severity may arise, and the life of the patient be endangered.

In writing this paper acknowledgment is due to the excellent and exhaustive paper by Priestley in recent numbers of the *Medical Chronicle*, and thanks are due to Dr. R. M. Buchanan for his assistance in the *post-mortem* examination of organs.

THE RELATION BETWEEN CHEMICAL CONSTITUTION AND PHYSIOLOGICAL ACTION.

By T. RHYMER MARSHALL, D.Sc. EDIN.,
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THERE is now no doubt, from recent researches, that a close relationship exists between the constitution of a chemical substance and its physiological action. This connection was observed by Bunsen in 1843, even when a knowledge of the constitution, especially in regard to saturation, was practically unknown. Bunsen found that cacodylic acid $(\text{CH}_3)_2\text{AsO.OH}$, which contains about 54 per cent of arsenic, is inert, although absorbed into the system, and he thus clearly saw that the composition alone of a substance was insufficient to explain physiological action, but that constitution—that is, the structure of the molecule—must also be considered.

One of the first and most important steps to a knowledge of this relationship was made by Professors Crum-Brown and Fraser, who showed that the introduction of methyl into the molecule of strychnine or thebaine changed the tetanising action of those poisons on the spinal cord into a paralysing one on the ends of the motor nerves. This conclusion has lately been found to be incorrect, as the tetanic action is not

altered by the saturation of the compound by methyl iodide, but simply masked by the motor nerves being paralysed.

In this paper I shall confine myself to the consideration of the physiological action of carbon monoxide, carbon dioxide, methane, and ammonia, and a few of the derivatives of marsh gas and ammonia, both for the sake of simplicity and for the purpose of showing that the physiological action of a substance of known constitution may even now, in some cases, be predicted with certainty.

SATURATION.

The pharmacological activity of a substance depends largely on the degree of saturation, and the study of the compounds of carbon and oxygen bear this out in a marked degree. The atom of carbon has four separate points of attraction for other substances for which it has an affinity when brought under the necessary conditions. If excess of carbon be heated with oxygen only two of these affinities will be satisfied, and the active substance carbon monoxide is produced, and as it still contains two free affinities, the compound is termed unsaturated. The physiological activity of carbon monoxide is due to this state of unsaturation, and is thus capable of combining with the hæmoglobin of the blood, thereby impairing its function as an oxygen carrier. If we burn carbon monoxide, then the higher oxidation product, carbon dioxide, is formed, and now the substance is saturated—that is, the carbon no longer possesses free affinities. It is thus easy to understand, from the consideration of the degree of saturation, that carbon dioxide cannot be an active poison like carbon monoxide, as it is no longer capable of forming firm compounds with active organic substances.

However, it cannot be considered altogether inactive because, in the presence of water, it forms carbonic acid, $\text{CO}(\text{OH})_2$, a weak member of a class of bodies possessing a distinct action on living protoplasm.

MARSH GAS AND MARSH GAS SERIES OF HYDROCARBONS.

Marsh gas CH_4 , which is a compound where all the free affinities of carbon have been satisfied by hydrogen, is a perfect example of an inert saturated compound in the physiological sense. When inhaled, largely diluted with air, it causes no disturbance in the animal system, but produces an

anæsthetic action when breathed in quantity, not because it acts directly on living tissue, but for the reason that it prevents oxidation by exclusion of oxygen.

Marsh gas is the first of the series of very stable hydrocarbons known as paraffins, which may all be derived from marsh gas by continuously replacing a hydrogen atom by the methyl radicle CH_3 . The volatile members of this group act as anæsthetics by a process of suffocation, and the higher members are quite inactive, not possessing any recognisable physiological action.

UNSATURATED HYDROCARBONS.

If, however, hydrogen be removed from the paraffins, their active unsaturated compounds are formed. Ethylene, C_2H_4 , the first member of the olefine series of hydrocarbons, like marsh gas, acts as an anæsthetic, but owing to the free affinities is much more dangerous to life by acting similarly to carbon monoxide. Acetylene, C_2H_2 , a still more unsaturated substance, is more poisonous than ethylene.

THE HALOGEN DERIVATIVES OF THE PARAFFINS.

The paraffins, although inert saturated compounds, may be rendered very active by directly substituting hydrogen atoms by halogen atoms. In all these derivatives the halogens are more firmly bound than in their salts, but notwithstanding, the halogens still exert a distinct general physiological action of their own, so that in a compound like chloroform, CHCl_3 (which is marsh gas with 3 hydrogen atoms replaced by chlorine atoms), not only must we consider the effect of a saturated hydrocarbon, but also the action of the chlorine present.

Chloroform, therefore, acts as an anæsthetic (1) by a process of suffocation; (2) by causing, in virtue of the chlorine present, semi-coagulation of the protoplasm in the nerve cells.

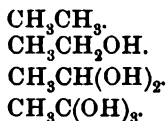
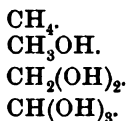
It has been found by experiment that the pure halogens cause anæsthesia by producing partial coagulation in the nerve cells, and they also act still more strongly on muscular fibre. This action on protoplasm is also produced in a modified degree by the halogen derivatives of the paraffins, and in considering the choice of an anæsthetic, it is important to remember the physiological action of the halogens. Although chloroform is one of the most convenient anæsthetics, still,

owing to the presence of so large a percentage of chlorine, the tendency to paralyse muscular tissue is great. There is little doubt that a safer compound could be selected, having all the convenient properties of chloroform, by choosing one of the chlorinated higher paraffins. Great care must be exercised that these halogen derivatives be used pure, as very frequently grave disturbances and even fatal results have been produced by impurities.

The bromine and iodine derivatives exert a more powerful influence than the chlorine compounds, but they are partially decomposed in the presence of light, hydriodic and hydrobromic acids being split off.

THE OXYGEN DERIVATIVES OF THE PARAFFINS.

The paraffins are capable of being oxidised indirectly into three totally distinct classes of bodies, each having a special general physiological action of its own. If we successively introduce into methane or ethane three oxygen atoms, we obtain types of these classes—



These substances may be considered as hydrocarbons where hydrogen atoms have been replaced by the residue, hydroxyl. This residue is one of the most important in chemistry, and its presence in organic substances influences the physiological action to an enormous extent.

ALCOHOLS.

The class of bodies where only one hydroxyl group is attached to a carbon atom is known as the alcohols. We shall now only consider the case of the simple alcohols of which methyl alcohol is the type, and where only one hydrogen in the paraffin is replaced by hydroxyl.

The activity of the alcohols is due to the hydroxyl residue, which probably produces physiological effects by entering into loose combination with nervous tissue, thus interfering with the processes of oxidation and reduction, on which its activity depends. Alcohols, by abolishing to a greater or less extent the excitability of all the nerve centres, act as hypnotics and

anæsthetics. The higher alcohols produce prolonged sopor, owing to the greater density and the influence of the larger number of carbon atoms on the hydroxyl residue.

ALDEHYDES.

We shall next consider the second group, where the paraffins have undergone still further oxidation. Here we have two hydroxyl residues replacing hydrogen atoms, and we have produced a group of bodies called aldehydes, which all possess the extremely active residue $\text{CH}(\text{OH})_2$. This residue, however, is very unstable, and under ordinary conditions splits off a molecule of water (COH). The activity of living protoplasm is most probably due to this aldehydic group, and the readiness with which this residue condenses or combines with other active bodies, polymerises or becomes oxidised to acids or reduced to alcohols, enables a number of complex changes to take place. This extreme mobility explains the extraordinary multiplicity of actions which take place in living protoplasm.

Aldehydes are very powerful hypnotics, but cannot be used owing to their powerful action on the tissues. This powerful action is greatly modified when the aldehydes are polymerised into closed chains—*e.g.*, CH_3COH into para-aldehyde $\text{C}_6\text{H}_{12}\text{O}_3$. The aldehyde hypnotics do not depress the heart like the halogen derivatives of the paraffins. We can greatly increase the narcotic power by substituting halogens in place of the hydrogen in the aldehydes—*e.g.*, chloral $\text{CCl}_3\text{CH}(\text{OH})_2$. Chlorine is best, because bromine and iodine produce a too powerful depressing action on the heart. The strongly irritant action of aldehydes may be also greatly modified by replacing the hydrogen of the hydroxyl residues by the radicle methyl, as in methylal, $\text{CH}_2(\text{OCH}_3)_2$.

ACIDS.

The aldehyde group is readily oxidised to a stable radicle possessing acid properties ($-\text{COH} + \text{O} = -\text{COOH}$), but which is incapable of forming firm addition products with living tissue. These acids, like aldehydes, also act as hypnotics and anæsthetics, but from an entirely different cause. The activity of the protoplasm in a cell depends upon the oxidation of the aldehyde group to an acid group, and the acid waste, unless removed by alkalies present in the blood,

diminishes the oxidation process. Acids, when brought into contact with nerve cells, will therefore have an hypnotic effect, by contracting the protoplasm and lessening the oxidation.

The acids, when introduced into the system of mammals, will not act as soporifics, because they reach the nerve-centres as salts.

Having considered the general sedative effects of a few classes of compounds of carbon and hydrogen, and carbon, hydrogen, and oxygen, on the animal organism, it will now be of advantage to take up another class of bodies, whose general physiological action is exciting—namely, ammonia and its substitution derivatives.

Ammonia NH_3 is a gaseous compound of nitrogen combined with 3 atoms of hydrogen, and may be classed amongst one of the most active radicles in chemistry. This group is capable of combining loosely with water to form a hydrate, and with acids to form a class of bodies known as ammonium salts. Ammonia also combines with a large number of organic substances to form complicated compounds.

The most marked general physiological effect of ammonia and ammonium salts is their stimulating and afterwards paralyzing action on the spinal cord. By replacing the hydrogen atoms of ammonia salts by alkyl radicles, the physiological action is altered considerably. The substitution of even a single atom of hydrogen by an alkyl group appears to lessen the tetanizing action of ammonia, and this diminution is increased by further substitution of 2 or 3 atoms, then a change takes place, and when the fourth atom is replaced a convulsant action again becomes marked, but it is not so great as in the case of ammonia. All nitrogen substances of this type have therefore a tendency to convulsant action.

The well-known ptomaines—neurine, choline, and muscarine, are fully substituted ammonium compounds. Neurine, $\text{N}(\text{CH}_3)_3(\text{CH}=\text{CH}_2)\text{OH}$, contains an unsaturated radicle; choline, $\text{N}(\text{CH}_3)_3(\text{CH}_2\text{CH}_2\text{OH})\text{OH}$, an alcohol residue; and muscarine, $\text{N}(\text{CH}_3)_3(\text{CH}_2\text{COH})\text{OH}$, an aldehydic group. All these active groups modify the toxic power of the ptomaines, but they all possess the power of irritating the peripheral extremities of nerves, going to the secreting cells or to involuntary muscular fibres, and thus cause a state of violent contraction in these muscles. This is known as the curare action.

Preliminary to discussing other important derivatives of ammonia, it will be necessary to refer to the unsaturated closed chain of 6 carbon atoms known as benzene C_6H_6 .

which is present as a nucleus in the so-called aromatic compounds. Hitherto we have only dealt with simple open chains. Benzene tends to produce increased sensibility, inco-ordination, and tremor, so that the effect of substituting a benzene radicle C_6H_5 in place of a hydrogen atom in ammonia would be to modify the convulsive effect of ammonia. The action would therefore never assume that of true tetanus. To express the matter simply, we would say that the general physiological effect of a substituted ammonia containing a benzene nucleus is so to act on the grey matter of the cord, that stimuli do not reach the brain. This action is called analgesic action, which is the power of relieving pain.

By replacing another hydrogen of the ammonia, now containing a benzene ring, by acetyl, CH_3CO , we further modify the tetanic action of ammonia, and produce the valuable antipyretic and analgesic, *antifebrine*, $C_6H_5.NH.C_2H_3O$. The still stronger analgesic, *exalgine*, $C_6H_5.N(CH_3).C_2H_3O$, is antifebrine with the remaining hydrogen replaced by methyl. Those substances which act as antipyretics are supposed to affect the temperature of the body by acting upon definite centres of the brain. The stimulation of these centres cause contraction of the protoplasm in the muscle and gland cells, thus lessening the oxidation process which is the source of heat.

NH_3 .	$C_6H_5.NH_2$.	$C_6H_5.NH.CH_3CO$.	$C_6H_5.N(CH_3).CH_3CO$.
Ammonia.	Aniline.	Antifebrine.	Exalgine.

ANTISEPTICS.

In the earlier part of the paper I referred to the anæsthetic properties of the halogen derivatives of the paraffins, but did not mention the antiseptic action which the halogens convey to the hydrocarbons. It is found that all highly halogenated derivatives of the hydrocarbons are powerful antiseptics, but are dangerous owing to their anæsthetic action; still, they are useful where this latter property is desired. The derivatives of benzene and other closed chains are more powerful and less poisonous than the above; and there are a large number of benzene derivatives containing iodine, which are superior to iodoform (which is the most powerful of the paraffin series), as they are devoid of smell, and probably produce no poisonous effects.

In considering the employment of antiseptics for internal disinfection, we must be very careful to study the effect they

may produce on the organism. It is found that the diphenyl (diphenyl, $C_6H_5 - C_6H_5$) are less poisonous and more powerfully antiseptic than the benzene (benzene, C_6H_6) derivatives. It is, however, interesting to note that the poisonous action of benzene can be greatly reduced by sulphonating. For instance, the poisonous carbolic acid, C_6H_5OH , which possesses powerful antiseptic and slight anæsthetic properties, is converted into the comparatively safe antiseptic substance, *aseptol*, $C_6H_4OH SO_3H$, by introducing the sulphonic acid radicle, $-SO_3H$. Probably the safest and most potent antiseptic will be found amongst the diphenyl sulphonic acid derivatives.

THE EFFECT OF HYDROXYL IN BENZENE.

Benzene, although active to a slight degree in itself, is converted into a powerful poison and antipyretic by the introduction of the hydroxyl group, which again proves the great activity of this radicle. This toxic action is increased with the increased number of hydroxyl groups.

THE PYRIDINE CLASS OF BODIES.

Pyridine, C_5H_5N , may be looked upon as benzene with one of the carbon atoms replaced by nitrogen. This pyridine nucleus is interesting from a physiological point of view, as it is to be found present in nearly all the alkaloids, and there is no doubt that this group characterises the physiological action of these complicated bodies. Dr. Stockman has found that all the pyridine derivatives have an antiseptic and antipyretic action. In studying the physiological action of pyridine and its derivatives, he found that the action was diminished by substituting alkyl groups in place of the hydrogen atoms; also, that by saturating the ring by addition of hydrogen they are rendered nearly harmless.

By saturating the nitrogen by the addition of methyl iodide, the physiological action is so modified that a curare action is produced (the property of paralysing the motor nerves). It is, however, well to remember that, in all these cases of substitution and addition to a nucleus, the change in physiological action is not sudden or profound, but that this action is simply modified in particular directions, although the symptoms produced may be in themselves profound.

A CONTRIBUTION TO THE STUDY OF INJURIES
OF THE EYE.¹

BY DR. ZIEM, DANTSIC.

(Translated by A. BROWN KELLY, M.B., Glasgow.)

GENTLEMEN,—The first patient I bring under your notice to-day was seen by you last year, and also six years ago. A. D., of this city, is now 18 years old. About nine years ago, while whittling a piece of wood, he unfortunately drove a twig with great force against his right eye, lacerating it perpendicularly at its upper part. The injury was so serious that several ophthalmologists, who were immediately consulted, and amongst them the deceased J. Jacobson, wished to undertake the enucleation of the eye at once. The parents of the patient were unable, however, to make up their minds for this, so antiphlogistic treatment was pursued in the first place, and later an iridectomy performed. After some time the patient was again able to attend school, but could not read or write longer than half-an-hour at a time without pain setting in above the injured eye, or tears flowing from the other. Marked redness of the conjunctiva also persisted; the eye itself was tender on light pressure, and at the same time pain was caused in the supra-orbital and temporal regions. Matters continued thus for several years, his condition being sometimes better, sometimes worse. The proposal to remove the eye, which was repeatedly made in the interval, was always negatived by his relatives. In November, 1887, the eye received a fresh injury from the blow of a fist, in consequence of which there was a hæmorrhage into the anterior chamber, and severe inflammation, with violent pain. The patient at that time came under my treatment. In about eight days, by the application of a special method for the constant and uniform abstraction of heat, the inflammation had so far subsided that a more detailed examination could be made. The condition then (14th November, 1887) was as follows:—The right half of the patient's face is much flatter than the left, both in the region of the cheek, corresponding to a less development of the body of the superior maxilla, and in regard to the orbit, which has remained

¹ Compiled from several papers read before the Medical Society of Dantsic; compare also *Internationale Klinische Rundschau*, Nos. 10 and 11, 1888.

smaller than the left. The right eyeball is also the smaller. Its anterior chamber is very narrow, and still contains blood. The sclero-corneal fold is streaked, the cornea only about two-thirds the size of the left. A sagittal indrawn scar of the sclerotic runs from its upper pole towards the centre, and is continued backwards through the anterior chamber as a broad, white tract; above, there is an artificial notch in the iris. The eye is amaurotic, pressure causing tenderness, with supra-orbital and temporal neuralgia. The left presents a normal structure, with perfect vision, moderate contraction of the visual field, prompt reaction of the pupil, and no abnormality of the fundus.

At the beginning of December, I learned that there was frequently nasal obstruction, which gave rise to buccal respiration, especially during sleep. On examining the nose then, I found moderate swelling of the mucous membrane of both sides, but neither on the first nor second day was any purulent secretion washed out with the force pump. On the third day, however, some of a yellowish colour and slightly foetid odour was expelled. The washing was continued, and produced a result, which, at that time, astonished me greatly; for, even after some days, not only had the pains in the head, of several years' duration, considerably diminished, but touching and pressing the eye were now borne. On 9th February, 1888, when I showed the patient here for the first time, you were able to convince yourselves that one might press the eye, even very strongly, without the patient experiencing the least pain; the temporal and supra-orbital pains had then quite left. The eyeball was somewhat angular, the conjunctiva paler, according to the statement of his relatives, than it had ever been during the previous three years. The visual acuteness of the left eye was above the normal ($\frac{8}{8}$), its range of accommodation equal to 14 dioptries, and the field of vision of normal extent. The nasal passages were free; the sleep was quiet. The prognosis then given, that we might leave untouched the eyeball undergoing atrophy, and that the cyclitis had come to a termination, has been fulfilled. During the entire interval that has since elapsed, there has been no reappearance of inflammation in the eye, and only at a small circumscribed spot, corresponding to the superior pole of the scar, there is still very slight tenderness on pressure, just as in other parts of the body an insignificant sensibility of scars to pressure frequently persists, as, for instance, in a scar on my index finger, the result of a lacerated wound received twenty-five years ago. The young man has

attended a higher school in order to become an electrician in Berlin, and has frequently worked till eleven and twelve o'clock at night without ever having felt any discomfort in his eyes. The left eye has certainly become short-sighted, an interesting example of the rôle played by the accommodation in the origin of myopia, and disfavours the theory of convergence. With -3 D, however, he has perfect vision ($\frac{5}{8}$), and now reads Niden type 1, from 34 to 4 cms., the range of accommodation amounting thus to 22 dioptries.

CASE 2.—This patient, L., labourer, now 23 years of age, you saw on 14th April, 1893. In 1881 he received a stroke from the lash of a whip on the right eye, and was treated by Dr. Schneller. Iridectomy was twice performed, probably on account of increase of pressure from incipient glaucoma. The eye, nevertheless, became amaurotic. For years all went well, till suddenly, in March of last year, an acute and idiopathic inflammation of the eye set in, with tenderness on pressure. Dr. Lievin consequently recommended enucleation as early as possible. To this, however, the patient would not consent, and on 10th March, 1893, he consulted me. At that time the well known, deeply seated, violet injection of the right eye was present, the tension of the eyeball was above the normal, and there was tenderness on pressure. The left eye was emmetropic, the vision perfect, and its range of accommodation amounted to 12.5 dioptries (Niden type 1, from 62 to 7 cms.) On investigating the cause of the aggravation which had set in so suddenly, I learned that the patient was employed in a brewer's cellar, which in winter was close and musty, and that he had lately become affected with severe nasal catarrh associated with obstruction. The simple washing out of the nose with salt water by means of the force pump was now undertaken, at first twice daily, afterwards once daily. This procedure was continued for some weeks; the patient did not lose a day's work. On 14th April of last year you were able to convince yourselves that there was no longer any necessity for enucleation. The range of accommodation of the left eye amounted then to 14.5 dioptries (Niden 1, from 80 to 6 cms.) In the course of the summer and autumn, the man frequently presented himself for examination at my request. On 8th April of this year, I found that the vision of the left eye was above the normal ($\frac{5}{8}$), that he read Niden type 1, from 86 to 4 cms., and that the field of vision was considerably greater outwards than at the first examination. The right eyeball is still somewhat tenser than normal, but pale and without any tenderness on pressure. Downwards and out-

wards the iris displays two contiguous notches. The refracting media are clear. The fundus I see well in the upright image, without correction of my 7.5 dioptries of myopia. The papilla is slightly excavated, especially towards its lower part, where the course of the vessels is somewhat tortuous. In the region of the macula lutea an old chorio-retinitis, indicated by heaping up of pigment and streaky (cicatricial) lines, covers an extensive area. In the periphery of the fundus numerous foci of former disease are seen. The nose is free; the head no longer feels heavy.

CASE 3.—J. N., aged 38, carpenter, from Schidlitz, consulted me at the request of Dr. Müller, on 29th April, 1893. Four weeks previously, while fitting in a window casement, a pane of glass had fallen on his right eye and cut it across. He had afterwards been treated in a hospital with cold and atropin.

I found the following conditions:—The right eye somewhat smaller than the left, inflamed; traumatic cataract, apparently total; transverse scar of the cornea implicating also the sclerotic; in the ciliary region above, marked tenderness on pressure; light and darkness still distinguishable.

The left eye photophobic; refraction and visual acuity normal (V. still somewhat more than $\frac{5}{7}$); range of accommodation of 5 D (Nieden type 1, from 50 to 14 cms.); not inconsiderable diminution of field of vision.

The right side of the nose has been obstructed for long owing to swelling of the mucous membrane. Of the first upper molar on the right side only the stump remains, which is sensitive on pressure.

Cold dressings to the eye, afterwards warm poultices, and washing of both eye and nose with a tepid 1 per cent salt solution proved agreeable to the patient without producing any marked improvement. This, however, was obtained (on 23rd May) after the stump of the tooth already referred to had been extracted, and a passage bored through its alveolus into the antrum. During, and after the opening, there was pretty profuse bleeding, indicating that there had been great congestion in the cavity. This, even by means of Davidsohn's immoderately overvalued symptom—viz., the pupil remaining dark during the transillumination of the bones of the face, naturally could not be diagnosed owing to the presence of the cataract.¹ By continuing the washing the eye became pale, shrivelled more, and gradually lost its tenderness on pressure;

¹ The case has already been made use of in my paper, denouncing the over-estimation of transillumination of the antrum, which appeared in the *Monatsschrift für Ohrenheilkunde*, No. 12, 1893.

the patient was thus able to resume his work on 11th June. In the course of the summer and autumn he presented himself frequently at my request, in order that his condition might be noted. On 23rd March, 1894, the vision of the left eye was found to be over normal ($\frac{5}{4}$), the range of accommodation amounted to 6·5 D (Nieden 1, from 68 to 12 cms.), and there was marked extension of the field of vision. The right eyeball is still a little sensitive only on lifting heavy weights; no photophobia; undergoing atrophy. I refrain from mentioning other cases which have been treated with a like result or are still under treatment, but in which the duration of the cure could not be determined on account of the patients having left Dantsic, or from other circumstances.

The cases which have been described here are of the greatest importance for various reasons. In the first place, they show, in the most striking manner, to every one who can see, and who wishes to see, that nasal conditions can really exercise an influence on intra-ocular affections. Whoever puts any value at all on facts, must at length admit, without reservation, this connection. For, in the two first cases, by simply washing out the nose with salt water, cure of the cyclitis was obtained, the affection having lasted in the one case one year, and in the other six years. There is nothing to be gained by disputing with a young author and specialist for diseases of the nose and throat, who has found himself obliged to attribute to an error on my part, observations which I have reported on a high degree—in some respects the most marked and highest degree—of contraction of the field of vision in affections of the nose and its accessory cavities, simply because he himself has not detected a similar relation. M. Knies,¹ in Freiburg, has recently stated that “‘the nervous eye reflexes’ (asthenopia, paresis of accommodation, concentric diminution of the field of vision, with or without disturbance of the central vision, blepharospasm, &c.), observed by Ziem and some American physicians, may indeed occasionally occur, owing to the eye and nose being in such close proximity to one another,” still that there is “nothing wonderful” in this, nor is it of any further importance. Leaving out of account the arbitrary and unsuitable mode of designating these symptoms as reflex, we find him in direct contradiction to the opinion he had adopted, immediately thereafter acknowledging that in one case of nasal suppuration observed by me, an

¹ M. Knies, *Das Sehorgan und seine Erkrankungen* (Wiesbaden, 1893), p. 287.

immense shrinking of the field of vision was only overcome when the discharge from the antrum was re-established, and that there was a fresh exacerbation on its being checked. But the foregoing three cases are in themselves sufficient to prove that Knies's view of the unimportance of these observations is absurd. No. It certainly was no small matter for the sufferers, neither for the two workmen, that they were restored to health in a period of a few weeks, which, compared with the time usually required to effect a cure in similar cases, was remarkably short, nor for the active young lad whose education was interrupted for three years, that now for six years he has been able to work and study continuously. These cases also indicate a departure generally from the excessive operative zeal in intra-ocular affections, and especially from the passion, still strongly evinced, to enucleate every injured eye without more ado. To be sure, the enucleation of many eyes will always be necessary, especially when a hidden foreign body is not otherwise removable, or when a malignant tumour is present; but as for other cases, it is a matter of determining the cause why a cyclitis is not cured, and of then removing it in the manner I have already frequently laid down. Just as here, the congestion within the eyeball, which was maintained by the swelling of the nasal mucosa, was dispelled by overcoming the latter. A quiescent phthisical eyeball is, from a medical if not from a cosmetic standpoint, far better than the most beautiful artificial eye. The latter often irritates the conjunctiva, and is gladly laid aside by the wearer in the privacy of his own room when he is no longer under observation, and there is no further need of keeping up the deception.

Such cases are thus of great theoretical importance in the study of sympathetic ophthalmia. Of course, in the strict sense of the term, a sympathetic "ophthalmia" had not yet set in—it was merely a question of a sympathetic "irritation" of the second eye. This, however, provided the disease in the first eye had persisted, would most probably have ultimately passed into sympathetic ophthalmia. The cases afford strong evidence in favour, not so much of the older theory modified by Deutschmann, which maintains the transmission of sympathetic ophthalmia by the optic nerves, as of that which attributes it to a change in the ciliary nerves. We may look upon it as an established fact that not only is the choroid as a whole the most vascular tissue of the body (J. v. Gerlach), as even anatomists of last century admitted,¹ but

¹ Note by Bock, *Wiener klinische Wochenschrift*, 1892, No. 12, p. 192.

that its most anterior part, especially the orbiculus ciliaris, consists of an erectile tissue. In regard to this we would present for consideration—

1. The anatomical proof contributed not long since by Walter Fleming, according to which the choroid in reality is two or three times thicker than was previously believed when estimates were formed from the examination of preparations drained of blood, or shrivelled in spirits.

2. The strikingly tendril-like winding course of all the posterior ciliary arteries—a provision which is not only related, as Hyrtl holds, to the free, unhindered, rotatory power of the eyeball, because the other blood-vessels of the eyeball, especially those of the retina, would then of necessity show the tendril-like winding, but which rather represents a characteristic of erectile tissue here, as well as in the plexus of the genital organs and the choroid plexus of the brain.

3. The power of erection of the ciliary plexus (Fick), which has been demonstrated by direct experiments on animals, and of some of the very similarly constructed portions of the choroid in the bird's eye (Ziem). It is now clear, and in complete accordance with clinical facts, that in consequence of the erection of the corona ciliaris of the first eye as a result of injury, a synergetic erection must also take place of the corona ciliaris of the second eye, it matters not whether by reflex irritation of the vasomotor centre, or by intervention of the ciliary ganglion or how else, the only difficulty is to determine the manner in which this sympathetic "irritation" passes into true "inflammation." In reference to this, Professor Schmidt-Rimpler has set value on the presence in the body generally, of carriers of infection, and thinks that these become localised in an injured eye. Simpler, and in harmony with the course of the cases here described, is the supposition that infection bearers in the immediate neighbourhood of the eye, in the nose and its accessory cavities, are the cause of the stasis in the ciliary circle passing on to a real inflammation, though some details of this process are not yet understood.

In opposition to Deutschmann's theory of the extension of an inflammation along the optic nerves, stands the striking fact that a sympathetic affection in animals very seldom arises spontaneously—i. e., without being artificially produced. At least, Jos. Beyer, professor in the Veterinary School in Vienna, with a large field for observation, has never seen, after traumatic suppuration of a horse's eye, an affection of the second eye, although he has had opportunities of keeping under observation for years horses which had lost an eye

from injury.¹ Professor Möller, of the Veterinary School in Berlin, likewise states that sympathetic inflammation of the eye in horses is "very rare," that no case has occurred in his own experience, and that he has never seen an affection of one eye in consequence of an injury to the other; further, that a case, reported in India by Plemper van Balen, of supposed sympathetic inflammation of the eye, was probably the so-called moonblindness, and the occurrence of the disease in question could not be proved; finally, that in dogs, when both eyes are affected, it is nearly always of doubtful infectious origin, having been transmitted from without.² I myself, in 1878, saw a cat which had lost an eye through injury years before, and had never presented any trace of an affection of the other. Similarly, in fish, blindness of one eye is often found in consequence of traumatic iridocyclitis, while the other eye is perfectly normal. Now, Deutschmann has certainly produced experimentally in rabbits an affection which extended along the optic nerves, and was regarded by him as sympathetic ophthalmia, although, in thirty-five experiments, he obtained only twice positive results without general infection—i. e., without symptoms of pyæmia.³ On the other hand, the frequent occurrence of the affection by extension along the optic nerve and its sheaths is contradicted by the following, amongst other observations:—Brailey proved by histological examination that the affection was confined altogether to the second optic nerve and its immediate surroundings only in 5 per cent of all cases; the same author also proved that the inner layer of the choroid, the chorio-capillaris, together with the pigment epithelium of the retina, remain free, and that there is infiltration of only the middle and outer layers of the choroid;⁴ lastly, the similarity, which was also specially noted by Berry, of the ophthalmoscopic image in neuritis optica descendens with that of optic neuritis which had extended from the choroid by means of the circle of Haller.⁵ The experiments of Deutschmann and his successors, the injection of aspergillus, staphylococcus, croton oil, jequirty, and other things into the vitreous substance, the optic nerve itself and neighbourhood, are nevertheless very different from

¹ *Zeitschrift für vergleichende Augenheilkunde*, 1891, Bd. 7.

² *Augenheilkunde für Thierärzte*, 2, Auflage, 1892, pp. 75, 126, 243.

³ *X internationaler medicinischer Congress, Berlin, 1892*, Bd. 4, p. 116; *Annales d'oculistique*, Juillet, 1893.

⁴ *Loc. cit.*, p. 109.

⁵ *Loc. cit.*, 125.

the kind of eye injury clinically observed. They are too artificial, and it seems almost wonderful that sympathetic inflammation, or something similar, has occurred so rarely in these researches. In carrying out such experiments, if they are thought necessary, and if it is hoped that more will be gathered from them than from those experiments destined by fate for the eyes of man and beast, in my opinion, the injury would require to be of the kind commonly occurring, with implication especially of the ciliary body—*e. g.*, bruising of the one eyeball by a blow from a blunt weapon, or a shot; laceration with a knife, scissors, or the like; in the first place, simply to imitate, and then to await the result, both by spontaneous healing, and by the customary atropine treatment, with its powerful, though still obscure influence on the intra-ocular circulation.

In view of the negative observations of Möller and Beyer, there is still doubt as to the true historical establishment of enucleation of injured eyes. This procedure was introduced somewhat over seventy years ago into our therapeutics, as a result of the experiences of English veterinary surgeons, or rather, farriers. Is the usual statement correct that the enucleation, or destruction of the eye first attacked, was undertaken in order to prevent the sympathetic affection of the second eye, or solely for the purpose of hastening the cure of the first eye? For, in the latter connection, the enucleation of affected eyes is recommended by Möller even to the present day. Thus, in his description of panophthalmitis, he writes as follows:—"As the consequences of inflammation exercise no important influence on the second eye, or on the life of the animal, one usually decides to extirpate the first eye only when it is desired to remove the inflammatory conditions present in it as soon as possible, and to make the working horse again serviceable."¹ It may also be mentioned here, that, in working horses, pulling must be especially prejudicial to an injured eye; for, according to Gerber, a sack-like dilatation of the facial vein is very often found,² which can only be regarded as the result of the vigorous drawing and the increased difficulty in expiration produced thereby. Similarly, in the third case above described, slight tenderness was caused in the injured eyeball for months afterwards, whenever heavy weights were lifted. It seems to be admitted in the literature of the subject, however, that

¹ *Loc. cit.*, p. 75.

² Hyrtl, *Topographische Anatomie*, 1882, Bd. 1, p. 373.

the destruction of the first affected eye was undertaken by the veterinary surgeons, not simply as a means of cure, but partly also as a prophylactic. Thus, James Wardrop, whose *Essays on the Morbid Anatomy of the Human Eye* I have had an opportunity of consulting in the original, writes as follows:—"There is a disease frequent in the eye of the horse, having the appearance of a specific inflammation, which usually first affects one eye and then the other, almost always, sooner or later, destroying vision. It is known among some farriers that, if the eye first affected with this disease suppurate and sink into the orbit, the disease does not attack the other eye, or subsides if it had commenced in it. Thus, they have adopted a practice of destroying altogether the diseased eye in order to save the other, which is rudely done by putting lime between the eyelids, or thrusting a nail into the cavity of the eyeball, so as to excite violent inflammation and suppuration. I have frequently succeeded in saving one eye of the horse by adopting this practice; but I destroyed the eye by simply making an incision in the cornea, and discharging through it the lens and vitreous humour. In some diseases of the human eye, where the disease makes a similar progress, first affecting one eye and then the other with complete blindness, the practice so successful in animals might, by judicious discrimination, be beneficially adopted."¹

To the above I may add the following remarks:—

1. A sympathetic affection of the second eye appears to have been observed by Wardrop and his supporters only in horses, but not in other animals.

2. It must be left for further and more detailed investigation to explain why the sympathetic affection of the second eye in horses is "frequent," according to Wardrop, and, on the contrary, "rare," according to Möller and Beyer.

3. Special emphasis is to be laid on Wardrop's statement that in panophthalmitis, whether of spontaneous or artificial origin, the affection does not pass to the second eye, or, if it has already begun, it comes to a standstill. This opposes Deutschmann's theory, and favours the modified theory of the ciliary nerves. It is also in harmony with the fact, already brought prominently forward by Professor Schmidt-Rimpler, that panophthalmitis in man almost never gives rise to a sympathetic affection of the second eye. One is really unable to conceive in what way the establishment of a suppuration

¹ *Loc. cit.*, London, 1818, vol. ii, p. 139.

in the first eyeball is to effect the retrocession of an affection which has extended along the optic nerves to the second eyeball; while, on the other hand, in suppuration of the first eyeball the ciliary nerves and the corona ciliaris are destroyed, and irritation exercised by them thus far ceases to exist, so that the inflammation produced in the second eyeball can now be cured under favourable conditions. As you are aware, operative procedures on the eye first affected, after sympathetic inflammation had attacked the other, have been followed in man almost always by consequences which were not successful, and sometimes were even unfavourable. These results differ greatly from Wardrop's experiences with horses, and would seem to indicate that in man there is an agency which aggravates the disease, and which, having regard to the cases above described, is perhaps to be sought in the frequency of pre-existing nasal disease.

You see, gentlemen, this subject still presents many suggestive points. At all events, it will require to become the rule, in every case of injury of the eye, to take into consideration the condition of the neighbouring parts as regards the presence of suppurations and congestions. Then, perhaps, many of the injuries, especially those which at first appear only trifling, but ultimately turn out badly, will give a better functional result than that which is still so often obtained, and which reflects no credit on the customary methods of treatment: a question also of great importance from the medico-legal point of view. When W. v. Zehender, also, in his excellent handbook of diseases of the eye, in conjunction with the Englishman, Jacob, eighteen years ago, assumed that certain dyscrasies, as scrofula, rheumatism, syphilis, emaciation, and the like, could favour the origin of sympathetic ophthalmia,¹ the view I advanced associates itself directly with that just expressed, in so far as the so-called scrofula, in the majority of cases, is the same as nasal suppuration (v. Tröltsch, Ziem, and others), and all the symptoms of scrofula can be referred without difficulty to transference, by metastasis, of pus from the nose.

¹ *Handbuch der Augenheilkunde*, 3 Auflage, 1876, Bd. 3, p. 613.

A CASE OF ACUTE OSTEITIS AND SEPARATION OF
CORACOID PROCESS; ABSCESS IN AXILLARY AND
PECTORAL REGIONS; PLEURO-PNEUMONIA; DEATH.

By GEO. HENRY EDINGTON, M.B. (Glas.),

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THE following case is recorded as an illustration of purulent collection in the axilla due to disease of the scapula. The patient was in Dr. Fleming's ward in the Royal Hospital for Sick Children, and to his kindness I am indebted for permission to publish these notes.

A. C., male, aged 8 months, admitted on 12th April, 1894, with a fluctuant swelling of large size occupying the axillary, pectoral, and supraclavicular regions on the left side, of unknown duration. The child being illegitimate and utterly uncared for, no history at all was obtainable.

Examination on admission showed the child to be very ill, and in a markedly asthenic condition. Temperature 99·6°, pulse 136, and respirations 60 per minute; the nostrils dilating with each inspiration. A large swelling was observed in the left axilla, more anteriorly than laterally, while another was present above the clavicle on the same side. Over this latter the skin was glazed and red, and a similar condition obtained in the upper part of the axillary swelling. At the areas of reddened skin, fluctuation was superficial and easily made out, but elsewhere over the swelling it was not so distinct. Great engorgement of superficial veins existed in left pectoral region. No definite dulness over the lungs was made out, but the respiratory murmur over the right was harsh, and vocal resonance was increased, while over the left there were abundant very fine râles. The child looked worse than the axillary condition accounted for.

After some brandy (half a drachm) had been administered, the swelling in the supraclavicular region was incised, giving vent to yellow pus of moderate consistence. Another incision was made over the swelling, in the anterior fold of the axilla, and a large quantity of pus of similar character was evacuated. On introducing sinus forceps into the cavity, further abscesses—evidently glandular—were tapped. A counter-opening was made near the lower angle of the scapula and a large drainage-tube inserted. The abscess-cavity in the supra-

clavicular region was stuffed with iodoform gauze, and dry dressings applied.

On the day following, large wet boracic dressings were substituted for the dry dressing, as this was not allowing free vent for the discharge.

17th April.—Large quantities of pus continue to come away. To-day, hypodermic needle was introduced into the left pleural cavity, as there was reason to suspect a collection of fluid in that sac. Neither serous nor purulent fluid was discovered, but a drop of blood came into the hypodermic syringe, and the child coughed up a small quantity of bright red blood, and seemed to become very weak. The needle was introduced at a spot near the lower angle of the scapula, supposed to be quite separate from the discharging abscess-cavity in the axilla.

19th April.—The purulent discharge continuing, the axillary and scapular incisions were joined by a third. No evidence was obtained of an intra-thoracic source for the pus, but it was found to be burrowing about the scapula, and, on account of this, a counter-opening was made to-day behind the angle of the scapula and a gauze drain inserted, coming out in front at the axillary incision.

26th April.—Up to last operation, the temperature had been keeping a steady course, ranging from 99.4° to 101° . On the following morning, however, the thermometer registered 103.6° (rectal). Subsequently the temperature became very irregular, but the child seemed to progress favourably, and the wounds cleaned up satisfactorily. Two days ago, however, the temperature ran up to 104° , thence to 107° (this evening), when death occurred. Previous to the end there was great sinking-in of eyes, and the respirations became very laboured.

Section.—Probe passed into the axillary wound makes its way up behind the clavicle and out at the supraclavicular wound. On dissecting the parts, there is found to be much enlargement and matting of glands on the surface of the serratus magnus, extending thence to the neck, behind the clavicle. The jugular vein and carotid artery are embodied in a thick hard mass, probably glandular (see below).

The wound above the clavicle communicates with a small abscess-cavity in the vicinity of the chain of glands extending up from the serratus magnus to the neck. On raising the pectoralis minor, it is found that in place of the coracoid process there is a hollow in which is lying loose a spongy, bony sequestrum. There is a smooth, concave facet with a cartilaginous surface on the scapula, at the normal situation

of the coracoid, and just behind where the sequestrum is lying.

Further dissection of the parts shows no evidence of disease in any other part of the scapula. The shoulder-joint, humerus, and ribs are normal. The right scapula, on examination, shows the coracoid process to be apparently of normal size and shape, with considerable portion ossified.

Examination of the Chest.—There are numerous pleural adhesions on left side, with evidence of recent pleurisy in intensely congested state of pleura, both visceral and parietal, with, here and there, flakes of fibrinous exudation. The pleural sac contains a few ounces of a somewhat turbid fluid, in which are greenish yellow flakes. There is condensation of the posterior part of the lower lobe, of dark reddish-brown colour; it sinks in water. Other parts of the lung are normal, and it weighs $3\frac{1}{2}$ oz. The right lung presents, at the posterior part of the lower lobe, evidence of collapse, suggestive of atelectasia. This portion sinks in water; otherwise the lung is healthy, and weighs $2\frac{1}{2}$ oz. There are numerous pleural adhesions.

Abdomen.—The spleen is enlarged, and adherent to the under surface of the diaphragm. It weighs 1 oz. Otherwise, nothing remarkable is found.

Conclusions.—The case seems to have been one of acute osteitis of the coracoid process, followed by necrosis and separation of the process.

From the resulting abscess under the deep fascia of the axilla not being attended to in time, it had extended upwards behind the clavicle into the neck. Microscopic examination of the mass enclosing the vessels in the neck showed it to be glandular—there being a condition of acute inflammation, with appearance as of impending abscess-formation in the glands.

It is possible that infective matter was conveyed into the pleural sac by the exploring hypodermic needle, but it is more probable that the pleuropneumonia was a part of the general condition.

In view of the absence of history, one cannot determine whether or not there was a traumatic element in the case.

Note.—The specimen is in the Children's Hospital Museum.



PUBLIC HEALTH.

A NEW LIFE TABLE FOR GLASGOW.

ARCHIBALD K. CHALMERS, one of the Medical Officers for the City of Glasgow, has just published a new Life Table for Glasgow. It is based on a careful and most exhaustive analysis of the vital statistics of the city for the ten years 1880 to 1890. The Table is constructed for Glasgow as it was before the extension of the city boundaries, as the figures for Greater Glasgow were not available for the decade under consideration. The Table is, therefore, slightly less favourable than one for the extended city would have been, the mortality for 1892-93 of Greater Glasgow showing a mean difference of $\cdot 7$ per 1,000 of the population living as compared with Glasgow; and this represents a difference in favour of Glasgow in the total number of deaths occurring annually of little under 500 on the present estimate of the population.

Dr. Chalmers has produced three Life Tables—one for males and one for females, and a third showing for both sexes the chance of living one year from each age, and the number living at each age out of 100,000 born; while the mean life expectancy at each year of age is graphically represented by a chart. The chart shows at a glance that the expectation of life rises from birth when it stands at 37·70, to 4 years of age at which it reaches its highest point for males—namely, 48·29—and that from this point it gradually falls. For females at 4 years of age the expectation of life is somewhat lower—namely, 48·29; but this is also the highest point. The working out of these Tables, into which it is not necessary for us to enter further, must have cost an immense amount of laborious work, and on the thoroughness and diligence with which the work has been done, Dr. Chalmers deserves our warm congratulations.

But the inquiry preparatory to the elaboration of the Tables has yielded results of the utmost value from a public health point of view. The death-rate of a population, expressed as a ratio per 1,000 living at all ages, is of insignificant value when compared with an estimate of the mortality at each year of age, or even in various age groups, and for the

different sexes; for by means of the latter is revealed the age at which the forces tending to shorten life concentrate their attack, and there are afforded indications of the direction in which advances may be made towards repression of disease. Thus, for the decade 1881 to 1890 the average annual mortality for males of all ages was (omitting decimals) 25 per 1,000, and for females 23, and the average annual death-rate at all ages and for both sexes was 24 per 1,000. When the deaths, however, are analysed into their proper age groups, it is found that under 5 years of age the mortality for males is 86 per 1,000, and between 10 and 15 years of age only 5; between 25 and 35 the rate has risen to 9 per 1,000; between 45 and 55 years of age it has risen to 26; but it is not till the age-period 65 to 75 that the rate of mortality approaches that of childhood, and is 84. Such an analysis shows also that the rate is less for females than for males up to 20 years of age, and less also from 35 years onwards; but that in the period 20 to 35 the death-rate of females is in excess of that of males.

Dr. Chalmers has made an interesting comparison between the results revealed by his Tables and those applying to Manchester and Brighton, as shown by the Tables of Dr. Tatham, late Medical Officer for Manchester, now Superintendent of Statistics in the Department of the Registrar-General for England and Wales, and Dr. Newsholme, Medical Officer of Health for Brighton. The populations of Manchester and Glasgow are not so dissimilar in point of numbers, and the conditions of life are fairly comparable; while Brighton may be taken as a valuable index of the extent to which the two industrial cities depart from a good standard of health. In Glasgow we have seen the mortality among males under 5 years of age is, in round numbers, 86, while in Manchester it is 84, and in Brighton 64; among females it is in Glasgow 75, in Manchester 70, and in Brighton 52. A comparison between the three towns as regards the probability of living 1 year from each year of life shows it to be greater in Brighton than in either Glasgow or Manchester, and to be greater in Glasgow than in Manchester for both sexes at 1 and at 10 years of age, and for all ages after 20 except females at 25. At the ages of 5, 15, and 20 in the case of both sexes, and in the case of females at 25 also, the probability is greater in Manchester than in Glasgow. As regards expectation of life, at all ages Glasgow is better than Manchester, but much inferior to Brighton. Thus, the expectation of life for males is—

At birth, in Glasgow, 35·18, as against 34·71 in Manchester.

„ 10 years,	„	44·32,	„	42·75	„
„ 20 „	„	36·90,	„	34·62	„
„ 45 „	„	19·54,	„	17·80	„

But, to limit our view to these four ages, the expectation of life in Brighton is respectively 43·59, 49·12, 40·55, and 22·36 years, a contrast requiring no accentuation. Carrying on the comparison between Glasgow, Manchester, and Brighton, Dr. Chalmers points out that of 100,000 males born in Glasgow, 33,130 die before completing their 5th year, and 47,852 before completing their 35th year, while before they can complete their 39th year more than half are dead. In Manchester 32,104 out of 100,000 males born die before the end of the 5th year; this is 1,026 fewer than in Glasgow. Putting similar facts in another way, out of 100,000 male children born there survive—

At the end of the 1st year in Glasgow 82,531, in Manchester 80,650

„	„	2nd „	„	74,044,	„	73,485
„	„	3rd „	„	70,422,	„	70,779
„	„	4th „	„	68,231,	„	69,067
„	„	5th „	„	66,870,	„	67,896

—that is, the mortality of infants is greater in Manchester in the first year of life than in Glasgow, but the next two years more than redress the inequality. In the age-period 5 to 15, out of 100,000 males born in Glasgow, there is a loss of 343 in excess of the number in Manchester at the same period. In Manchester the saving in life, as compared with Glasgow, goes on till the twenty-fifth year. In this age-period, 15 to 25, if the male deaths occurred in Glasgow at the same rate as in Manchester, 1,146 males would be saved to the community (out of every 100,000 born). But at 25 the scale turns in favour of Glasgow, and at 39 years the survivors of 100,000 born number in Glasgow 49,536, as against 49,695 in Manchester—that is, the inequality established in favour of Manchester by the saving of life in the earlier years is nearly redressed at the age of 39. At 40 the inequality is on Glasgow's side, and at 41 years 48,042 survive in Glasgow against 47,785 in Manchester. Or, to put it in another way, of 1,000 men in Glasgow aged 45, 475 survive their sixty-fifth year, while in Manchester only 414 do so. “It would appear, therefore, that the population of Glasgow

begins life under heavy disabilities, and that of its childhood, infancy, and youth a large death-toll is exacted. But, for those who survive to the age of maturity, these risks have been largely overcome, and the greater expectation of life at birth is largely owing to the extended lifetime of those who reach the most productive period of life."

We have seen how Glasgow compares unfavourably with Manchester up to the age of 25, and how the scale turns as regards numbers surviving at the age of 40, and thereafter is in favour of Glasgow. A similar comparison made with Brighton shows how far it is, from a health point of view, in advance of either city. A few figures only need be quoted to illustrate this:—Of 100,000 males born, there survive at the fifth year, in Glasgow 66,870, in Brighton 75,125; at the tenth year, in Glasgow 63,550, in Brighton 73,344; at 25 years the difference in favour of Brighton is 11,985; at 45 years it is 11,522; at 65 the difference in Brighton's favour is 11,244; and at 75 it is 7,955.

Dr. Chalmers has been able to compare his results with similar analyses of two previous Tables. In 1829 Mr. James J. Duncan, then manager of the West of Scotland Insurance Company, published Life Tables for males and females, and in 1845 Mr. Neison, in his work on "Vital Statistics," published a Mortality Table, constructed "for the general population of the city of Glasgow." When these Tables are compared it is seen that a marked increase in the rates of mortality characterises a period between 1832 and 1841, that period reviewed by Mr. Neison. The results of the comparison are thus summed up by Dr. Chalmers:—"Looking back over the whole period covered by the three Tables, we see, at the beginning, the population of Glasgow enjoying a measure of vitality little short of the present standard, and it is fair to assume that earlier in the century it was even greater. But between that time and this there is a chasm, and it is probable that Mr. Neison's Table does not represent it at its greatest depth. The tide of industrial immigration, which came as a flood in the second quarter of the century, swamped the city. A rapid increase in the rate of mortality resulted. It is first observed in the adult population, indicating that many of the immigrants were ill-fitted to combat the altered conditions of their lives. Soon, however, it tells also on the children. In the fourth decade of the century 1 death occurs in every 10 male children living under 5 years, and we find the vital conditions which are so forcibly described

in the words of Mr. Neison: 'If the expectation of life for the city of Glasgow be referred to, the remarkable depreciation in the duration of life there will appear somewhat startling. No Table of Mortality hitherto published will show anything like so low an estimate.'

It appears from Dr. Chalmers' Table that, by the labours of the Public Health staff of the city, the ground lost fifty years ago has been recovered, and that the vital conditions of the population are now on a higher level than at any time previously in the present century. The publication of his investigations are thus most opportune, and his results are not only of great general public interest and utility, but should also be a stimulus specially to the staff of his own city, showing, as they do, not only the direction of advance, but indicating a standard to be aimed at.

J. M'G.-R.

Note on the Chart.—As already mentioned, Dr. Chalmers has graphically represented the yearly changes which take place in the expectation of life by means of the accompanying chart. Here the base line represents the years of age, while the ordinates erected on it indicate the expectation of life at each year. Reference has been made in the text in explanation of the upward movement, which covers only a few years from birth, and the prolonged downward movement, extending throughout the rest of life. The contrast curves which have been introduced show the expectation of life according to the rates of mortality published by Mr. Duncan in 1829, and indicate the changes which have taken place in the expectation of life during the intervening years. These changes are thus referred to by Dr. Chalmers:—"There is at birth now an increased expectation of life, for each sex, of fully a year. The greatest probable after lifetime by the old rate was 44·46 years for males, and 47·35 years for females, on the completion of the sixth and fifth year of life respectively. At 6 years of age males have now a probable after lifetime of 46·72 years, while the maximum expectation is 47·03 years at 4 years of age. That is an increase of 2·27 years at the age when the probable after lifetime is greatest. For females the change has been less marked. At 5 years of age their expectation of life now is 48·27 years, as against 47·35 years then, and the maximum at 4 years now is 48·29 years, which exceeds by nearly one year the maximum formerly attained.

E. L. M.

DIPHTHERIA AND OTHER ACUTE INFLAMMATIONS
OF THE NOSE AND THROAT, WITH SPECIAL REFER-
ENCE TO RECENT METHODS OF DIAGNOSIS AND
TREATMENT.

By JOHN MACINTYRE, M.B., C.M., F.R.M.S.

At the present time, when so much attention is being paid to the causation and treatment of one special acute affection of the upper respiratory tract, it may not be inopportune to offer some remarks upon this and other acute inflammatory affections of this region. In this paper I wish, in the first place, to refer to the difficulties which at present exist in the classification of these diseases; then to the influence which bacteriological investigation is likely to have; and, lastly, to the necessity for greater facilities for such investigations with the view to better classification and treatment.

A glance at any of our ordinary text-books on diseases of the nose and throat will show the imperfect classifications at present in use. Each author attempts to group the cases which come before him according to clinical evidence, and in consequence great confusion exists. For example, many catarrhs in the nose, clearly arising from different causes, are classed together as "acute rhinitis." The presence of a discharge gives rise to the term "purulent rhinitis," while a membrane forming on the surface suggests the name of "rhinitis fibrinosa" or "croupous rhinitis," and so on. Again, in the region of the tonsils, Wagner¹ describes five different forms of acute inflammation, while Mackenzie² contents himself with two. Bosworth³ describes as croupous what is generally known as follicular tonsillitis, and attempts to classify such conditions according to the false membrane present. Other examples might be quoted in the region of the pharynx and larynx, but it need hardly be pointed out that they do not hold good in view of the recent advances in bacteriological science. False membrane, we know, may be produced by agents which cause severe inflammation and death of the epithelial or other structures. Various micro-organisms possess this power, and Roux and Yersin have described cases of primary pseudo-membranous anginas which were not due to the presence of the Klebs-Loeffler bacillus. The presence of fibrin in the exudation may be considered more an index of the severity of the influence at work

than an indication of any specific agent. Although we are not yet in a position to give a definite opinion upon the various causes of catarrhs, we know sufficient to show that many forms of acute inflammation of the upper respiratory tract are due to different causes. For example, the application of certain chemical agents to the Schneiderian membrane may produce a catarrh, and the injection of a few drops of blood from a patient suffering from measles will produce the disease in another, and an irritation of a similar nature in the same mucous membrane. It is quite evident, therefore, that some agents placed upon the membrane from without, and others brought to it from within, will produce similar indications of catarrh. Fortunately, most so-called specific catarrhs in the nose and throat are attended with other signs rendering the diagnosis comparatively easy, but an acute inflammation of the upper respiratory tract is often one of the first indications of the onset of a specific affection. In most cases the local signs are at first insufficient to indicate the precise nature of the affection, and clinical observers know that in mild cases of fever the proofs may be altogether absent. In consequence, a large number of people are mildly affected with scarlatina, measles, or diphtheria, and the sore throat from which they suffer shows nothing to distinguish it from what is termed a simple catarrh. For the most part, our text-books, when speaking of etiology, refer to such agents as air, water, food, cold, damp, age, sex, occupation, diatheses, or, it may be, specific influences supposed to be characteristic of particular infectious fevers. A careful analysis of these shows how difficult it is to understand the exact influence exercised by each. Age and occupation may be quoted in this way, because the one often infers the other. Occupation may suggest a tendency to a particular affection, but many so occupied will not be so affected. The term "cold" does not mean absolute cold. Food and water may produce various forms of disease, but more because they are vehicles for the transmission of other agents than from any inherent defects. Undoubtedly the greatest advances of late have been made in the region of bacteriological science, because the life-history of the pathogenic organisms, whether studied in or outside of the body, often explains what would be otherwise incomprehensible. The study of etiology, however, did not begin with bacteriology, nor will it end there. Every one engaged in the study of diseases of the throat has numerous examples placed before him of considerable irritation occurring in this region where imperfectly heated and moistened air has been, under

certain conditions, brought to bear on the delicate mucous membrane of the parts below. A careful study of the physiological processes taking place in the nostrils will show how important it is that the air passing to the lower respiratory tract should be heated and moistened as it passes over the region of the turbinated bodies and mucous membrane in this cavity; and a considerable proportion of cases of irritation of the membrane lining the respiratory tract may be attributed to causes quite apart from those of bacteriological origin. Further, comparatively slight causes lead to other changes and sequelæ of a serious nature, which may be traced in definite order and sequence. A slight obstruction from swelling of the turbinated tissue will produce a different atmospheric pressure behind, and so produce hyperæmia of the parts. This means over-nutrition, and over-nutrition leads to over-growth of tissue. If this process be carried on sufficiently far, nasal stenosis will result, either in the mucous membrane itself or the lymphoid structures of the naso-pharynx, and so a whole series of sequelæ of a detrimental nature may be produced in the larynx, trachea, lungs, or even, in children, in the hard walls of the chest itself.

Shortly after the discovery of the Klebs-Loeffler bacillus, several years ago, I made a series of experiments upon the bacteriological examinations of these cavities, and was fortunate enough to have valuable advice and training from Dr. Edington, then of the Bacteriological Laboratory at Edinburgh University. The first series of observations lay in the direction of the study of the forms found in the upper respiratory tract in health as well as in disease. The results have shown, however, that difficulties arise when the subject is studied from this standpoint. Firstly, pathogenic forms may be found in the throat of persons in apparently good health; secondly, Raynaud, Pasteur, Roux, and Fraenkel have shown that micro-organisms very frequently found in the buccal cavity, and seemingly harmless there, do not appear to be so when injected into the subcutaneous tissues of animals; thirdly, the variety, as might be expected, is endless; fourthly, as we know, many of the known diseases suspected to be due to micro-organisms have not yet been traced to any known micro-organic source. Nevertheless, the study of the various forms met with in these cavities, particularly during health, is of great value in diagnosis when one is searching for a specific organism. With this view I have appended an amended list, published elsewhere, of micro-organisms frequently found in the examination of the upper respiratory

tract. It is evident that, in the present state of our knowledge, Koch's method of investigation is the only one likely to prove successful—that is to find, if possible, the constant presence of a particular organism in a particular affection, and afterwards, by his well-known methods, to establish the relationship between cause and effect by inoculation and cultivation. Notwithstanding the valuable results which have been obtained by many observers in different medical schools, it cannot be said that our range of knowledge is at present very extensive. Doubtless many acute inflammations may be traced to specific causes, a common one being in association with tubercle. The greatest part of the work has been limited to affections of the tract in which suppuration has taken place, or where a membrane of some kind or another has been formed on its surface. In attempting to distinguish which forms of micro-organisms are present in the acute affections going on to suppuration, I made a series of observations upon the nasal discharges, and, secondly, upon cases of suppuration taking place in the accessory sinuses—notably in the antrum of Highmore. In nearly all these cases it was easy to trace the presence of the ordinary micro-organisms of suppuration, such as streptococci and staphylococci. Their frequency was sufficient to suggest a causal effect; but it must be remembered that, hampered as we are by anti-vivisection laws in this country, it is impossible in every case to make inoculations after the different forms have been isolated by cultivation. Further, in a number of cases of recurrent erysipelas of the nose and face, I was able to trace the source of mischief lying latent in the antrum of Highmore. These results were published in the *Journal of Laryngology* for July, 1892.

In another series of observations the acute inflammations of the tonsils were considered, and the most commonly observed organisms were streptococci and staphylococci; in some instances other forms, such as the diplococci and pneumococci were observed. It need hardly be pointed out, however, that in the great majority of cases other organisms were present, particularly those which are found in the mouth under ordinary conditions. In this connection, it is important to note that such an authority as Miller⁴ of Berlin has pointed out that, in the pulps of the teeth of 250 persons examined, the suppuration was due to mixed organisms, cocci and rods being present with fairly equal consistency. A suppurative condition appears to be produced by the presence of these round-celled organisms, though the typical pyogenic forms—

the streptococci and staphylococci—are rarely to be found in the pus from these cavities. He states that these cocci may form a group of closely allied species, but they have a distinct pathogenic action, proved by injection into mice.

Apart from experiments upon animals, a good deal of information can often be obtained by clinical observation. We know that auto-infection may take place, and we can often trace the progress of events from point to point. For example, I had more than one case in the Glasgow Royal Infirmary where an apparently simple tonsillitis passed, as is not uncommon in such cases, to the glands of the neck, but afterwards to those of the mediastinum, and then to more distant organs of the body. The disturbance was so severe as to suggest a typhoid condition, lasting for weeks, and with great danger to life. Again, it is no uncommon thing to trace the suppurative processes from the antrum of Highmore to the naso-pharyngeal membrane, then to the Eustachian tube, middle ear, and mastoid region. Pleurisy, often purulent, and orchitis with suppuration, have been observed. Further, not only do we see that such acute affections, particularly in the region of the tonsils, may invade different parts of the organism, but they are capable of setting up serious constitutional mischief. Cardiac inflammations, endocardial and pericardial, may be noticed during the course of the disease; skin eruptions and albuminuria likewise; and some suggest that paralysis may be seen as a sequela. This last statement is doubtful, and has been vigorously contested, as pointed out by Sallard.⁵ Some clinical observers have mentioned paralysis following sore throat of the non-diphtheritic nature; but this is one of the many points which can only be cleared up by extensive bacteriological diagnosis.

Passing to the consideration of acute affections like diphtheria, in which a membranous exudation forms one of the characteristic features of the disease, I had no difficulty in demonstrating, in a considerable number of cases, the presence of an organism corresponding in every way to the Klebs-Loeffler bacillus. In July, 1892, I⁶ published a paper showing that, in 39 per cent of cases of diphtheria examined, this organism could be detected by microscopic examination and cultivation. This percentage is by no means as high as that of many observers; but it must be remembered that in consulting practice one is often called to the cases where, for many reasons, it is not possible to get the same opportunity of obtaining these organisms as in the earlier stages of the disease, and, moreover, the membranes may have been considerably

acted upon by antiseptics and other agents. Since that date my percentages have been very much higher; but it is by no means uncommon to find a case typical of diphtheria where the vast majority of organisms present are of the round form, in every way corresponding to the streptococci to which we have been referring. On the other hand, organisms which are now grouped as the pseudo-bacillus of diphtheria were often found, particularly in mild cases, and frequently in exudations of the nose, which might clinically be called rhinitis fibrinosa.

In collecting a series of statistics the following have come under my notice:—Beck⁷ found them 32 times in 32 cases; Tangl,⁸ 18 in 18; Escherich,⁹ 15 in 15; Baginsky,¹⁰ 118 in 154; Ritter,¹¹ 29 in 82; Parks,¹² 73 in 104; Phillips,¹³ 332 in 376; and Park and Beebe¹⁴ found that in 5,611 cases of suspected diphtheria Loeffler's bacillus was present in 3255. In view of the important bacteriological questions before the profession at present the above mentioned figures deserve careful consideration. Firstly, the results would show that the Klebs-Loeffler bacillus is frequently found in cases of suspected diphtheria. Secondly, no one can doubt that inoculation in animals will produce a pathological process. Again, Roux and Yersin produced typical paralysis by injecting the products alone. These facts seem proved beyond doubt. Nevertheless one is inclined to ask the question, are we justified at present in accepting the view that the presence of the Klebs-Loeffler bacillus means that the case is one of diphtheria, and its absence that it is not? I do not think we are yet in a position to take such a view of the case. It is evident that in a certain number of cases of suspected diphtheria it is not found. Moreover, we know, as I have said above, that streptococci may of themselves produce the most serious constitutional effects, and they are often present, and seemingly actively present, in cases of diphtheria. In my own practice, I have noticed that where the streptococci seemed to be actively engaged, and where the Klebs-Loeffler bacillus was also present in large numbers, the cases were very serious. This, like every other rule, is not without exception. Roux and Yersin have maintained that a combination of the two organisms increases the virulence of the latter, but this view has been disputed by Messrs. Washbourn¹⁵, Goodall, and Card.

Dr. Hansemann,¹⁶ assistant to Professor Virchow at the Pathological Institute, Berlin, on 28th November, submitted the whole question to a searching criticism. He first of all devoted himself to the anatomical aspect of the question, and

said that the Loeffler bacillus might be found in 75 per cent of all cases examined; that it was never found alone, but always in association with other virulent bacteria such as streptococci and staphylococci; that the organisms might be found in the mouths of healthy persons, and it could be found in the mouths of those who had recovered from the disease for weeks afterwards, and where there had been no relapse. He next criticised the animal experiments, and maintained that subcutaneous injections might set up serious infiltrations and hyperæmia of the kidneys; that on uninjured mucous membranes the bacillus often produced no effect. It might of course produce fibrous exudation on an injured mucous membrane, but the same results could be produced by chemicals and other micro-organisms. Diphtheria, he said, set up in guinea-pigs with the Loeffler bacillus was not by any means identical with Bretonneau's diphtheria of the human subject. The guinea-pig was susceptible to Loeffler's bacillus, but never to spontaneous diphtheria. Bacteriologists maintain that while Loeffler's bacillus was present we had diphtheria; where it was absent it was not diphtheria. He very properly pointed out that on this basis angina and conjunctivitis were diphtheritic, but that rhinitis fibrinosa, a comparatively harmless disease, must be diphtheritic, for the bacillus was constantly found there.

It is evident that with so many doubtful questions still to be settled, the only hope we have of arriving at definite conclusions is to have systematic and careful examination by experts at our great hospitals, but I think something more is required. Three years ago, when reading a paper at Nottingham on the etiology of catarrh, I suggested that bacteriological stations ought to be established throughout the country. About three months ago Mr. Lennox Browne¹⁷ suggested that such facilities ought to be afforded our practitioners, and recommended that a requisition be sent to the Local Government Board bearing upon the question. This has been done, and I have added a copy of it in the Appendix. The time may come when practitioners will be trained in our colleges to detect the presence of a specific organism in a particular disease, and then such facilities may not be required. If ever such a time should arrive, it will be after a great many of the questions now in dispute have been settled. Many practitioners have very properly acquired the knowledge for the detection of Koch's bacillus in tubercle, and doubtless it would be a comparatively easy matter to train men to detect the Klebs-Loeffler bacillus both by examination and cultiva-

tion. My own opinion is, however, that this is not enough, because there are many questions of the most serious nature yet to be settled about the exact causes and the relations between the presence of one or more organisms, and the effects produced in a particular affection. We can only look for exact statistics and results at the hands of experts. Moreover, many practitioners have neither the time nor knowledge, and an arrangement by which a reliable opinion could be quickly obtained would be of the greatest service to them. In New York such a system has been found to work admirably, and the first report has been published by their inspectors of bacteriology, Drs. Park and Beebe.¹⁸ Their small boxes can be obtained at the different chemists containing culture tubes, swabs, and directions to the physician. A report can be obtained in the minimum number of hours necessary to examine and cultivate the specimen sent. From 4th May, 1893, till 4th May, 1894, 5,611 cases of suspected diphtheria were subjected to bacteriological examination, and of these 3,255 were shown to have the Klebs-Loeffler bacillus present. In 1,540 cases this bacillus was absent, and in 816 the diagnosis was considered doubtful, as the cultures were made after the fourth day of the disease or in doubtful culture media. Other important questions are considered such as sex, age, and mortality in true and pseudo-diphtheria, 1·7 being the mortality in the latter, as contrasted with 27 per cent in the former. Information is also given about the proportion of cases of suspected diphtheria which proved, after bacteriological examination, to be true diphtheria. The best methods of preparing media, the methods of examining cultures, the growth upon various media and inoculations in animals, are all dealt with in this very practical report. Several of these deserve more careful inspection, and in the Appendix to this paper I have placed two tables bearing upon the virulence of bacilli found in twenty cases of throat inflammation of such a character as to arouse a suspicion of the existence of diphtheria, and upon the length of time during which the diphtheric bacillus persists in the throat after the disappearance of the membrane and its virulence in convalescent cases. Interesting results have also been obtained of a practical nature. For example, in considering the presence of the Loeffler bacillus in healthy persons who have been subject to the risk of infection, the authors point out that in forty-eight children, in fourteen different families, typical bacilli were found in 50 per cent of the cases, and 40 per cent of the children were afterwards

seized with the disease. These and many other questions of practical value are discussed in this excellent report, and a perusal of it will show at once how much valuable information could be obtained were similar laboratories established in the great centres of activity in this and other countries.

That the study of the etiology of the acute affections of the upper respiratory tract will have a powerful influence upon treatment, no one can doubt. Our sanitary authorities are vigorously engaged in discovering the causes and various channels by which infection may be carried. Further, isolation in the diseases which are considered infectious is being strongly insisted upon. I do not think, however, that this has been sufficiently carried out, because a considerable number of conditions of the pharynx and larynx, often termed membranous, are not yet classed under the infectious diseases. It appears to me that, if we are to prevent the spread of disease—especially in children, and more particularly in school children—isolation at the very earliest state, in all cases of suspected acute inflammation of the throat, should be insisted upon, and an early diagnosis made. But in considering the prophylaxis of disease, there is another serious aspect of the question. Professor Macewen has shown in his great work the dangers to persons with chronic suppurative discharges in the region of the ear. No one engaged in the study of diseases of the nose and throat can fail to be impressed with the constant recurrence of and serious effects arising from latent mischief in the accessory cavities and crypts of the tonsils. That they should be dealt with surgically, and in the most thorough manner, so as to obtain restoration to healthy functions, is the only sensible view to adopt. And in this connection we may take a step further, and refer to the dangers which a patient with enlarged tonsils and post-nasal adenoid growth is bound to encounter if seized with an acute membranous condition of the fauces. Dr. Woodhead has very properly pointed out that the organisms in this case are really on the surface of the body, producing, as it were, outside of the body, toxin which causes the disastrous constitutional effects; but while that is true, one can easily see how difficult it is to apply any remedy with success to the surface of a diseased tonsil full of crypts, the mouths of which are so swollen as to prevent the access of an antiseptic agent to the deeper parts. The question, therefore, of the advisability of dealing with this, even in the acute stage, is one well worthy of consideration, and in this respect, the paper which Dr. Watson published

in the *Glasgow Medical Journal* last year deserves attention. Theoretically, at least, bacteriological investigation goes far to prove that the application of local antiseptic treatment should be persevered in, and the indications are, of course, in the direction of the remedies best suited for the destruction of the active agents in the production of the disease. The tendency of modern thought is to try, as men have all along been trying, to find some constitutional specific whereby those struck down with acute infections may be helped, and this brings us to the question of serotherapy.

Ever since the remarkable experiments of Fraenkel,¹⁰ Behring,²⁰ and Kitasato,²¹ showing that immunity could be obtained in certain animals by the inoculation either of culture fluids (heated to 60° or 70° C.) or immunised blood serum, a considerable amount of attention has been paid to the subject. Behring's recent work on the history of diphtheria has naturally attracted most attention, but it must be remembered that Roux is entitled to great credit, not only because of his own work and that with Yersin, but also for the methods of production of the serum and the rules for its administration. Klein, in this country, is also doing admirable work, and it is to be hoped reliable statistics will soon be at our disposal, especially from those who have been fortunate enough in hospital practice to obtain supplies of the remedy.

Already statistics are being brought forward, and Messrs. Washburn,¹⁵ Goodall, and Card have given the results in 80 cases treated by this method. Owing to the difficulty in getting supplies, comparatively few in this country have as yet had an opportunity of testing the remedy, and so, for the most part, our information is derived from Continental observers. For experimental purposes, I had, some time ago, a limited supply sent to me. Three different kinds are now to be had—the first, Ahronson's, the second, Burroughs, Wellcome & Co.'s, and the third is that of Lucius & Brüning. The principal of the last-mentioned laboratory is Dr. Libbertz, under the control of Professors Behring and Erlich. Meantime, I may be allowed to point out that the remedy as supplied by the different chemists seems to vary in several respects. The last two preparations mentioned require a much larger quantity, and this is, to a certain extent, unfortunate, as it necessitates more trouble and a larger syringe. Messrs. Down Brothers have produced one on the same lines as Koch's for tuberculin, and capable of holding 20 c.c. Lucius & Brüning give their preparation in three different strengths—No. 1

contains 600 antitoxin normal units; No. 2, 1,000; and No. 3, 1,500. A case of diphtheria in an advanced stage requires several injections of single doses of No. 1, or the contents of No. 2 or No. 3 in the more concentrated forms. They recommend the half-bottle No. 1 as a prophylactic for children and adults. Injections are recommended to be placed in parts of the body where the skin is loose, and the parts upon which the patient lies should be avoided. I need hardly point out also that special antiseptic care is to be observed in cleaning the different parts of the syringe. I have used these different forms of the remedy, but prefer to reserve any remarks upon the general effects until I have had more experience of its actions. I have, however, tried to observe carefully any changes in the local condition after injection, with a view to confirming one great advantage claimed for it by Dr. Moizard²²—namely, the less frequent need of operation, owing to shrivelling and clearing away of the membrane. In one case, where the remedy had been injected previously by the medical attendant, I had to perform tracheotomy, as no beneficial results had been obtained. The medical attendant in charge of such cases has a better chance of noting this result, and I am pleased that in some of these the reports have been somewhat encouraging. I am favoured by one such report from Dr. Alexander Morton, of Glasgow, who had two cases in which he used two injections of 15 minims of Ahronson's fluid, and the results were prompt and satisfactory. The membrane, in both cases, was acted upon in the manner claimed for it by the discoverer. Dr. Simmers, of Crail, using the same preparation in a few cases, had a similarly good result. Dr. Gougeunheim, of Paris, writes me that, from his own observations and that of others in Paris, he looks upon the discovery as of great importance. Others, both at home and on the Continent, have been less favourably impressed with the remedy. Vulpis,²³ Klebs,²⁴ Noswinkel,²⁵ Schubert,²⁶ Behring,²⁷ and Ehrlich²⁸ have recently published papers, and, while the reports vary somewhat, the general impression is one of hope. The two following opinions are worthy of consideration, and all the more so as they look upon the question from different points of view.

At the meeting referred to above, Dr. Hansemann said Behring's blood serum therapeutics rested upon the basis that the cure of the infective diseases was really a process brought about by self-immunisation. *This was a theory—not a fact.* Behring further believed that human beings could be

immunised by the blood serum of immunised animals. Experiments made in that direction were not yet proved. He disputed Behring's claim that recovery always took place when the treatment was early, and referred to a number of fatal cases where the treatment was begun on the second or third day. The fact that paralysis of deglutition followed recovery in a striking number of cases, showed that the serum was not specific. Dr. Hansemann thinks that there are no scientific, theoretical, nor experimental proofs which would justify us in considering diphtheria-curative-serum as a specific against diphtheria, or that its curative action has yet been proved in practice. Lastly, he referred to the kidneys, rashes, hæmorrhages, fevers, weakness of heart, articular pains, coma, and albuminuria recorded, and maintained that blood serum has a destructive influence on the blood and kidneys. In spite of all this searching criticism, however, Dr. Hansemann did not deny that the serum exercised a certain curative influence of an inconstant nature, and this statement is extremely important. Somewhat bearing upon the more favourable aspect of the question, one of the most important communications which I have had the opportunity of seeing is that of Dr. Moizard.²² During October and November, 1894, he had the opportunity of using the blood serum in 302 cases admitted to the Hôpital Trousseau; 53 of these were proved to be non-diphtheritic by bacteriological examination, and of these 28 were in the hospital at time the paper was written. 10 of these were considered cured, but taking the 53 considered non-diphtheritic and the 18 still in the hospital, he writes an article upon 231 cases, and states that the mortality was 14·71 per cent. He considers that 9 of the cases included in the 231 were so ill on admission as to be beyond hope of treatment under any circumstances, and if these were deducted the mortality would be reduced to 11·26 per cent. Dr. Moizard points out that the organisation of his wards had to be changed some time previous to these experiments owing to the great mortality after operation. Now, patients are admitted into certain parts of the hospital and carefully examined, in all cases bacteriological examination being made. Those that are considered as non-diphtheritic are passed to one section of the hospital; those with severe complications are not allowed into the same wards of the hospital; and those suffering from diphtheria pure and simple are passed into the wards for this purpose. He attributes a great part of his success to care in selection. Further, Dr. Moizard carried out local treatment by means of

irrigations of boracic acid in water several times a day, and painted the throat with solutions of salicylic acid and glycerine. On admission to the hospital, each patient received an injection of 20 c.c. of serum, but the dose was repeated if unfavourable symptoms occurred on the second, third, or even fourth day after admission. Dr. Moizard further considers the complications, and combats the views expressed by Oertel and Ritter about the dangers of albuminuria. Dealing with the sequelæ further on, he states that in only 1 case did abscess follow the injection; that 23 cases showed skin eruptions—14 being urticaria, the others, various forms of erythema and 1 of purpura. As a result of his experience he considers the result of the injection of blood serum so harmless that he recommends its use without waiting for the results of cultivation, which takes so many hours. Of course, he gives certain reservations about this, and considers such treatment is justifiable only where one has clinical evidence indicating what may be considered an ordinary case of diphtheria. He goes further, and warns us against expecting too much in severe cases of albuminuria, broncho-pneumonia, or in fact where the constitutional conditions are so severe as to contraindicate the use of any remedy, and particularly in cases of severe disease of the kidney, where that organ has a difficulty in casting out deleterious matter.

A consideration of the different opinions expressed about the value of this remedy will easily convince one that a considerable time must elapse before any accurate conclusion can be arrived at. It need hardly be said, further, that bacteriological examination, for many reasons, should be an essential point, that the special preparation used should be carefully noted, also that the dose and number of doses administered are points upon which we yet need much information; and, lastly, that any disadvantages attending its use should be carefully recorded.

Note.—The references to the authors quoted in the text will be found at the end of the Appendix to this paper, p. 53.

APPENDIX.

No. I.

REPORT UPON THE VIRULENCE OF THE BACILLI FOUND IN TWENTY CASES OF THROAT INFLAMMATION OF SUCH A CHARACTER AS TO AROUSE SUSPICIONS OF THE EXISTENCE OF DIPHTHERIA.

BY HALLOCK PARK, M.D., AND A. L. BEEBE, Ph.B.

	Severity.	Weight of Guinea-pig. gms.	Amount of culture injected. c.c.	Duration of life after inoculation.	Persistence of Loeffler bacillus after recovery of patient.
1	Very mild case; sick only 4 or 5 days.	485	2	40 hours	14-19 days
2	Subsequently contracted scarlet fever.	305	1	12 days	Note: Pig previously inoculated with non-virulent culture
3	Mild case.	350	1	45 hours	24-32 days
4	Mild case.	900	3	40 "	
5	Diag. — Char. follicular tonsillitis with history of exposure to diphtheria.	405	1	40 "	6 "
6	Very mild case; culture taken after disappearance of membrane.	430	1.5	40 "	13 "
7	Very mild case.	410	1.5	40 "	
8	Fatal case, and cause of severe case in mother.	435	1.33	40 "	P. 16 "
9	Mild case.	390	1.33	40 "	P. 38-41 "
10	Mild case; adult; never in bed.	210	0.5	50 "	P. 44 "
11	Removed to diphtheria hospital; severe case.	220	0.5	40 "	
12	Rather mild case.	620	3.33	25 "	P. 42 "
13	Very mild case.	479	2	40 "	P. 20-24 "
14	Fatal case; croup.	675	1.5	40 "	
15	Fairly severe case, followed by measles.	443	1.33	40 "	P. 15-23 "
16	Moderately severe case.	435	1.33	4 days	P. 15-19 "
17	Moderately severe case.	510	1.66	40 hours	
18	Fatal case; croup.	475	1.5	40 "	
19	Very mild case.	500	1.66	40 "	
20	Contracted from a mild case; no membrane present.	250	1	40 "	

No. II.

LENGTH OF TIME BACILLI MAY BE FOUND AFTER ILLNESS.

BY HALLOCK PARK, M.D., AND A. L. BEEBE, Ph.B.

Case No.	Severity.	Bacilli persistent after recovery for	VIRULENCE.			Persistence from inception of disease. days.
			Weight of Guinea-pig gms.	Amount injected. c.c.	Life of Guinea-pig after injection.	
1 (1300)	App. severe case but very quick recovery.	8 days	392	1.33	60-70 hrs.	13-17
2 (527)	Mild case.	10 "	250	0.5	8 days.	12-19
3 (1358)	Do.	12 "	290	1.25	11 "	(?)
4 (956)	Severe case.	18 "	229	1	9 "	21-30
5 (685)	Moderate case.	6 "	549	1.25	14 "	10-22
6 (909)	Mild case.	33 "	226	1	...	...
(Extensive necrosis with final recovery.)						
7 (1.13)	Very mild case.	12 "	440	1.5	About 40 hrs.	14-22
8(R. Weed)	Mild case.	8 "	310	2	C. 40 hrs.	16-20
10 (1.19)	Very mild case.	25 "	505	1.66	C. 40 "	30 (?)
11 (1.20)	Very mild case (nasal).	10 "	253	2	C. 40 "	10 (?)
12 (1.21)	Lesion; brother had mild case.	6 "	490	1.66	C. 40 "	24 (?)
13 (1442)	Mild case.	8 "	450	1.33	C. 40 "	13-20
14 (1.23)	Recovered.	12 "	347	1.33	C. 40 "	19
15 (1.24)	Fairly severe case.	33 "	347	1.33	C. 5 days	35-44

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No. III.

REQUISITION TO THE LOCAL GOVERNMENT BOARD SENT BY THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

A REQUISITION was sent by the Committee to the Right Honourable Henry Hartley Fowler, M.P., President of the Local Government Board, and Dr. Thorne Thorne. It was also resolved, at the October meeting of the Association, to send copies to the Local Government Boards in other parts of the kingdom.

The requisition pointed out that, "at a recent meeting of the British Laryngological and Rhinological Association, composed of physicians and surgeons from all parts of the empire, especially engaged in the study and treatment of diseases of the throat, a paper was read by Dr. Morris Wolfenden, emphasising the importance of the early recognition of the acute infective diseases of the tonsils, and the pressing necessity for the isolation of patients suffering from these disorders.

"As a result of the discussion which followed, a resolution was proposed

and carried that a representation should be made to your Honourable Board of the necessity for greater facility being afforded for bacteriological examination in these cases, by the establishment of stations for the purpose, such as is done in the city of New York, the details of which will doubtless be familiar to you.

"The Association does not for a moment presume to even suggest the means by which these facilities could be granted to medical practitioners, but would only point out that, while it is evident that the average family attendant, who is the first to see these cases during the initial, and therefore the most important epoch, is not in possession of either the requisite special knowledge or the facilities for pursuing such investigations, it must also be at once apparent that an accurate diagnosis at the commencement of those cases is of vital importance, not only to the individual attacked, but also for the protection of the community in general. Moreover, it need hardly be pointed out that many diseases in this region which may be regarded as infectious are not limited to diphtheria, though many of them, clinically so called, so resemble this disorder as to be only capable of differentiation by bacteriological methods.

"No true progress can be made in the proper classification of their relative virulence except by scientific research, and only by such a system can efficient notification be effected with a corresponding relief from the onerous responsibility which now presses on the medical profession in cases of doubtful diagnosis.

"It is confidently to be hoped that the early detection of such disorders, by the means indicated, would eventually lead to the diminution of diphtheria and allied disorders, now so alarmingly on the increase.

"It may, therefore, well be brought within the scope and duties of the medical officers of health and other officials under the control of your Department.

"The Association venture to think that on all these grounds, as well as many others which they forbear from pressing, no apology is needed for bringing this matter under your consideration."

The requisition was signed by John Macintyre, M.B., Glasgow, President of the Association; Philip C. Smyly, M.D., Lennox Browne, F.R.C.S., Arthur W. Snadford, M.D., ex-Presidents; W. Macneil Whistler, M.D., R. Norris Wolfenden, M.D., M.P., Mayo Collier, M.S. and M.B., Vice-Presidents; Edward Law, M.D., William Milligan, M.D., Richard A. Hayes, M.D., Members of Council; and V. H. Wyatt Wingrave, Secretary.

No. IV.

LIST OF THE MORE IMPORTANT MICRO-ORGANISMS FOUND IN EXAMINATION OF THE NOSE AND THROAT.

BY JOHN MACINTYRE, M.B., F.R.M.S.

A.—PARASITIC OR SAPROPHYTIC FORMS.

Mouth Bacteria—non-cultivable.

Scraping from tooth, showing round, spiral, rod shapes.

Spirillum sputigenum—almost pure cultivation from human mouth.

Spirochæta dentium, from human mouth.

Leptothrix buccalis—various forms.

" *innominata*—Miller's classification.

Bacillus buccalis maximus " "

" " " (high power).

Iodococcus vaginatus " "

Mouth Bacteria—cultivable.

Bacillary forms, various (health), showing spore formation.
 Cocci forms, various—cultivations on agar and gelatine.
Asococcus buccalis—*Miller*.

Fermentation Bacteria—zymogenic.

Bacillus acid lactici.

Colour-producing—chromogenic.

Cultures of organisms producing red-coloured matter in tubes.

"	"	"	green	"	"	"
"	"	"	yellow	"	"	"

Not classified above.

Micrococcus prodigiosus.
Sarcinæ ventriculæ.
Bacterium termo?
Bacillus subtilis.

Fungi.

Spores from upper air passages (*aspergillus*).
Aspergillus glaucus.
Penicillium glaucum.
Mucor mucedo.
Mucor racemosus.

B.—PATHOGENIC FORMS IN UPPER AIR PASSAGES.

Cultivable for most part.

From sputum	— <i>Bacillus crassus sputigenum</i> .— <i>Kreibohm</i> . <i>Micrococcus tetragenus</i> .— <i>Koch, Gaffky</i> .
Inflammation	— <i>Micrococci</i> .
Suppuration	— <i>Staphylococcus pyogenes aureus</i> .— <i>Ogston</i> . " " <i>albus</i> . " " <i>citreus</i> . <i>Streptococcus pyogenes</i> .— <i>Ogston</i> . Varieties <i>mic. pyo. tenuis</i> , &c.— <i>Rosenbach</i> . <i>Bacillus pyocyaneus</i> .— <i>Gerrard</i> . " <i>pyogenes foetidus</i> .— <i>Passet</i> .
Gonorrhœa	— <i>Micrococci gonorrhœa</i> .— <i>Neisser</i> . — <i>Streptococcus erysipelatosus</i> .— <i>Fehleisen</i> .
Pharyngo-Mycosis	— <i>Bacillus fasciculatus</i> , round and other forms.
Tubercle	— <i>Bacillus tuberculosis</i> in sputum.— <i>Koch</i> . " " <i>tissues of larynx</i> . " " <i>lungs</i> . " " <i>liver</i> . <i>Bacilli of decomposition</i> in sputum. <i>Micrococcus tetragenus</i> "
Leprosy	— <i>Bacillus</i> in tissues.— <i>Hansen</i> .
Syphilis	— <i>Bacillus</i> .— <i>Lustgarten</i> .
Rhinocleroma	— <i>Bacillus</i> .— <i>Frisch</i> . " in capsules.
Actinomycosis	— <i>Actinomyces</i> in tongue.
Diphtheria	— <i>Bacillus</i> (false membrane).— <i>Klebs-Loeffler</i> . <i>Pseudo-bacillus</i> . <i>Micrococci</i> in false membranes. " and bacilli, impure cultivations,

Pneumonia	—Pneumo-bacillus (pneumococcus).— <i>Friedlander.</i>
	„ in pus.— <i>Friedlander.</i>
	„ — <i>Fraenkel.</i>
	„ in lungs.— <i>Fraenkel.</i>
Typhoid	— <i>Bacillus.</i> — <i>Eberth-Gaffky.</i>
Malignant Disease	— <i>Psorosperma.</i>

C.—ENTRANCE OF MICRO-ORGANISMS TO TISSUES.

1. Mycelial spores passing through epithelium in living tissues.
2. Development within the tissues.

The investigator may also meet the following by contamination, &c.:—*Achorion schonleinii*, *trichophyton tonsurans*, *microsporon furfur*, &c. Biondi's¹ list includes *bacillus salivarius septicus*, *coccus salivarius septicus*, *micrococcus tetragenus*, *streptococcus septo-pyæmicus*, *staphylococcus salivarius pyogenes*. Kriebohm² mentions two non-cultivable forms found in mouth. These have not been included in the above list, as many of them are difficult to identify, and may appear under other names by different observers.

¹ *Breslauer Aertzliche Zeitsch.*, September, 1889, No. 18.

² *Flügge*, p. 319.

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CORRESPONDENCE.

To the Editors of the "Glasgow Medical Journal."

SIRS,—The letter of Dr. Oswald Fergus in your last issue, headed "A Side Light on the Question of Anæsthetics," will doubtless commend itself to the profession as most opportune in calling attention to the great need there is in having at its command the services of a thoroughly competent anæsthetist.

I venture to submit, however, that matters in this respect are not in so bad a plight in Glasgow as some may think. It may not be so widely known as it should be—still it is known in all ranks of the profession—that there is at least one Fellow of the Faculty (it may be accounted invidious to mention names) who has made this specialism a practical study, and whose services as an anæsthetist are at their command. For some years these services have been largely requisitioned, both in private practice and in public institutions.

ROBERT GRIEVE.

REVIEWS.

Index of Medicine: a Manual for the Use of Senior Students and others. By SEYMOUR TAYLOR, M.D., Member of the Royal College of Physicians, Senior Assistant Physician to the West London Hospital. London: Smith, Elder & Co. 1894.

SOME extracts from the author's preface will give an idea of the scope of the work. It "was commenced with the view to its being a companion to Keetley's *Index of Surgery*. It is, however, an index in its title only. It was found that the nomenclature of medical diseases, if taken alphabetically, would entail so many and such complex cross references, that the work would be disjointed and useless." "My chief object . . . was to compile a work which should be a handy manual for students preparing for their final examinations in medicine at the various examining Boards." "The book, therefore, can in no sense be considered as a text-book; but it is hoped that students may find it a useful supplement to the treatises on medicine which have been written by Bristowe,

Fagge, Frederick Taylor, Roberts, Osler, and others." "A description of diseases of the skin has not been written. I feel that broader information would be obtained from special works devoted to this subject."

Now, in spite of the author's protest, we feel bound to consider this work a text-book—viz., an elementary text-book of medicine, inasmuch as it deals with the general subject of medical diseases, and discusses their causation, pathology, symptoms, diagnosis, prognosis, and treatment. We were not aware that another manual of this kind was called for at present; but if there be such a demand, this book ought to do as well as some of the popular presently employed text-books for students. The style is almost always lucid, the arrangement in sections and paragraphs is very convenient, the type is excellent, and we have not noticed more than one or two misprints.

It seems to us a great mistake not to give an account of the more common diseases of the skin, and we think the author will be of this opinion before he comes to publish his second edition. The feeling that broader information would be derived from special treatises does not furnish the slightest justification for this omission. The feeling would be quite as appropriate in the case of renal disease or of cardiac disease; yet what writer of a work on medicine, though it were only an index, would dare to omit either of these subjects on any ground whatever? Besides, to look at the matter from another point of view, even a brief account of the more common cutaneous disorders would be quite as useful to students as the description given by the author of, *e.g.*, hydrophobia, which is so infrequent, or general paralysis of the insane, which is properly studied in connection with insanity.

A few passages are by no means so intelligible as might be desired for the sake of the learner; *e.g.*, under acute articular rheumatism, we have the following (p. 63):—"Diagnosis.—1. From Pyæmia.—In this disease the odour of breath and of perspiration is sweet and pungent; endo- and pericardial inflammations are rare; there is no metastasis—often one joint only is involved. Inquire for previous suppuration, periosteal trouble, or surgical operation?" Now, any student who has the faintest notion of what pyæmia is, will probably regard it as a condition characterised, above all else, by metastatic suppurations. But what is he to think when he comes to read these words: "there is no metastasis." Of course, the words that follow suggest the author's meaning to

one more advanced, but they can scarcely be expected to make it plain to the student of this book. This particular obscurity is not cleared up by turning to p. 190, where, in the description of acute pyæmia, we read: "pericarditis also may supervene rapidly;" or to p. 191, where, in connection with chronic pyæmia, it is stated that "there is also a tendency for the metastatic inflammation to miss the lungs and pericardium and to involve the larger joints, such as knees, elbows, and shoulders, and also the subcutaneous fascia and muscles. Hence, should the patient survive, it is at the expense of an ankylosed joint or joints, and probably of some scarring or disfigurement from the multiple abscesses."

Here is the account of the temperature in scarlet fever. "The temperature rises on the first day, reaching 100° F., or higher. On the second day, with the appearance of the rash, it is still higher (103° to 105°), and continues much at the same level till the sixth day, when it suddenly falls to about 99°, or even to normal, unless there be some complication. The fever thus terminates by crisis" (p. 109). The chart given, however, does not bear out this description. In it, the temperature begins to fall on the fourth day, and continues to fall until the ninth day. The subsidence is 6° in five days, or an average of 1° daily, except on the sixth day, when the fall amounts to 2°. It would be much more correct to style this a *lysis* than a *crisis*. The chart is doubtless correct: the description in the text is misleading. Wunderlich remarks that "in an overwhelming majority of cases defervescence is protracted, and requires from three to eight days for its completion." "In cases with moderate elevation of temperature it may happen, although only exceptionally, that the temperature falls rapidly and reaches the normal height in half a day" (*Medical Thermometry*, New Syd. Soc., pp. 348, 349).

The writer says (p. 647) that general paralysis of the insane "is seldom seen before forty or after sixty years of age." He says truly that it "occurs almost entirely during the prime of life." But the well recognised *plane* of life is from thirty to fifty, after the ascent to full maturity, and before the descent from the full vigour of maturity towards senility. The author makes the period of special liability to general paralysis considerably higher than is customary among writers on insanity. Twenty-five to fifty, thirty to fifty, thirty to sixty—periods given by other authors—probably represent the truth more nearly than does the statement in this book. An observant student might possibly be struck by the fact that a

considerable proportion of the cases described in detail in text-books of insanity as typical instances of the disease in question, occurred in persons who were under forty years of age.

We have pointed out some things which we regard as defects in this work, but we wish to add that it is the general excellence of the book which invites criticism of some details which, though faulty, are few in number.

The Practice of Medicine. By M. CHARTERIS, M.D., Professor of Therapeutics and Materia Medica, Glasgow University; formerly Physician and Lecturer in Clinical Medicine, Glasgow Royal Infirmary. Seventh edition. London: J. & A. Churchill. 1894.

THE author of this popular text-book may well reflect with satisfaction on the rapidity with which one edition follows another. Nor is there room for doubt that, as long as the work maintains its high character, it will continue to be in demand among successive generations of medical students. Though it may be quite true that a book which has so quickly reached a seventh edition has passed beyond the stage at which criticism can affect it in one way or another, it may yet be allowable to make some comments on it.

One of the first things to strike us is an extraordinary (fortunately quite exceptional) inaccuracy. On page 7 we read: "Any interruption of the nervous channels, either above in the cerebrum or below in the nerve trunks, is followed by degeneration, ending in atrophy of the whole nervous tract leading from the cerebrum to the peripheral termination. This is the so-called secondary degeneration of the cord." Now this statement is very misleading; how far it is erroneous it is difficult to say, because the author's meaning is not sufficiently plain. After an interruption in the cerebrum, the greatest distance to which secondary degeneration can extend is to the lower end of the pyramidal tract; it does not involve the nerve trunks at all. If the lesion is in a nerve trunk, degeneration takes place downwards to the peripheral termination of the nerve, and also, as regards the afferent fibres, upwards to the posterior root ganglia. It is true that the somewhat doubtful observations of Max Joseph suggest that a small proportion of the centripetal fibres of a peripheral nerve pass by the root ganglia into the cord without interruption, but their number is so small that they may be neglected;

and though they did perish, this would not amount to an appreciable secondary degeneration of the cord. Apart from the results of extirpation of organs, or section of nerve fibres, in very young animals, we have at present no reason to believe that a single lesion can cause degeneration of a nerve tract from its beginning in the brain to its termination in the periphery, *i.e.*, further than the extremity of the particular segment of the nerve path in which the lesion is situated. It should be stated, however, that the author recognises (p. 448) a distinction between central and peripheral paralysis, and so presumably between the upper and lower segments of the motor path. Yet even here objection may be justly taken to his accepting the definition of a paralysis as "central" "so long as that portion of a nerve centre is sound from which the nerves supplying the paralysed muscles take origin." In the common form of Bell's paralysis, the centre from which the facial nerve arises is sound, but the palsy is not "central."

Our author still prefers (p. 35) the name "typhoid" fever to "enteric." No doubt opinions may justly differ on this point, but we are not converted to the author's view by his argument that the designation "enteric" "conveys the impression that the inflammation of the intestines is the cause of the fever, whereas, in point of fact, it is the result."

On p. 40, *carotid* is probably a misprint for *parotid*.

The proof-reader ought to be responsible for the following, which does not look well (p. 152): "Colchicum, carb. magnesia, and sulphate of magnesium." Three lines lower we have "carbonate of magnesium."

The view is adopted in this work that exophthalmic goitre is due to hyperplasia of the thyroid gland, and that the increased amount of its secretion thrown into the system causes the symptoms.

With regard to the expression "Tabes mesenterica," old students of Professor Gairdner will be disposed to think much more of "tubercular peritonitis," and much less of enlargement and calcification of the mesenteric and retroperitoneal glands, than does the author of this work. The teaching of Sir Thomas Watson on this subject, long ago shown by Gairdner to be not in accordance with the facts of morbid anatomy, still tends to linger in the text-books.

On p. 436, on the subject of kinæsthesia, the author quotes, without comment, and therefore, we suppose, with approval, some sentences from the writings of Dr. Bastian. Thus it is stated that kinæsthetic impressions pass up through the spinal cord and bulb, and through the posterior part of the

internal capsule, to be registered in the Rolandic area of the cortex. Now, when the author takes his statement as to the cortical connections of the kinæsthetic sense directly from the writings of one authority, without any discussion, he ought, in justice, to explain to his student-reader that the views given are by no means universally held among neurologists. Thus, while Bastian contends that the Rolandic area contains sensory centres only (chiefly kinæsthetic), Ferrier maintains that it contains motor centres only, and Horsley is disposed (as was the late Dr. Ross) to believe that the small cell strata of the convolutions in question may be sensory, and the large, more deeply situated cells, motor. Dr. Hughlings Jackson also considers the Rolandic area to have a motor function.

The author still recommends small doses of iodide of potassium in lead poisoning. This may be right, but some recent experiments suggest that the iodide has no appreciable influence on the elimination of lead.

It need scarcely be said that there is no neglect of pharmacy or of therapeutics in this little treatise; and the author, who formerly assumed a rather sceptical attitude with regard to the pathogenic properties of bacteria and their products, is now well up to date in this department.

Lunacy Law for Medical Men. By CHARLES MERCIER, M.B.,
Lecturer on Neurology and Insanity, Westminster Hospital
Medical School and the Medical School for Women, London.
London: J. & A. Churchill. 1894.

THIS little book purports to be an exposition of the lunacy law of England only, and to interpret in a popular manner the Lunacy Act of 1890, and the rules laid down by the Lunacy Commissioners under that Act. In the main, the author has succeeded in his task. Beginning with a succinct description of the Idiots' Act, 1886, particularly of its definition of an idiot—a distinction which, in the lunacy law of Scotland, finds no place—the author deals with the steps that are necessary to be taken in the legal incarceration of a person of unsound mind, either in a public institution or under private control, as a pauper or a private patient. The lunacy petition, the different parts of it, and especially the medical certificate, receive in their turn considerable attention by the writer, and with good reason, in view of the increasing aversion on the part of not a few members of the profession to sign such certificates. Recent decisions have been the cause of this, as the case of *Weldon v.*

Simple, tried before Mr. Justice Hawkins and a jury in 1885, in which the medical defendant was cast in damages of £1,000, has not yet been forgotten. The reflections of the judge in this case did not a little to expedite reform in lunacy law, the effect of which was the passing of the Act of 1890.

The medical profession, too, has benefited in this reform, in that certain safeguards have been established between the *bona-fide* certifier and a litigious person.

The author very properly gives details of these safeguards, which, in general, are as follows—viz., (1) that in suitable cases a judge may stay proceedings, and thus save much unnecessary expense to the medical defendant; (2) by imposing a time limit within which a pursuer may raise an action; and (3) by limiting the venue of the action to a court within the county or borough in which the action originated.

The remarks of the author regarding the medical certificate, and the care to be exercised by the medical man are pointed and judicious.

For those who undertake privately the care and control of persons of unsound mind, the chapters dealing with this subject deserve careful perusal, since failure on any point is attended with monetary and other penalties.

On the subject of "testamentary and contracting capacity," the author has culled from contemporary literature several interesting cases illustrative of many points. Since it is in such cases that conflict of medical opinion is apt to arise, attention to the legal view of incapacity will repay many a practitioner; for not a few medical men experience much mental discomfort in the witness-box from want of proper care and observation being exercised in such cases.

The "sound and disposing mind," while fruitful of disquietude to the practitioner, is equally fruitful of fees to the legal practitioner.

In the concluding section of the book the author deals with criminal responsibility as affected by the plea of insanity urged on behalf of a prisoner.

In these days, when almost every prisoner who has committed a capital crime is considered to be insane by a sentimental section of the public, this section is of much interest. While in some cases there can be no division of medical opinion, there are cases, on the other hand, where it is at once a difficult and perplexing problem to the practitioner, and where division of medical opinion is bound to arise. And while the bench is apt, on occasion, to reflect disparagingly on that division of opinion, it is very consolatory to find that, in

this regard, the bench itself is even more divided on the nature and extent of the medical evidence which may be led.

The old question which the jury had to determine—did the prisoner, at the time the crime was committed, know the nature and quality of the act that he was committing, and did he know that it was wrong?—could only be answered from the medical evidence led. But different judges interpret the law differently as to the manner by which the jury may arrive at its answer to the question. Some of them hold that, before a jury can return a verdict of guilty, it must determine that the prisoner knew the nature and quality of his act, and that he was not of unsound mind. Some permit evidence to be led by the medical witness of insanity in the family of the prisoner—as to its possible heredity—and allow opinions to be given of the prisoner's sanity, although the examinations by which these opinions were arrived at may have been made some time after the commission of the crime. Others refuse such evidence *in toto*.

Some, again, will not allow a medical witness to give any opinion of the sanity of the prisoner, but ask him to narrate what passed between him and the prisoner, leaving it to the jury to form the opinion as to the state of mind of the panel.

All this the author very properly directs attention to, and advises the practitioner in such circumstances to carefully write down at the time verbatim accounts of the interviews with the prisoner, as then he will be best equipped to give evidence, no matter what view of the law the judge may take.

While there is to be found among its pages an occasionally obscure sentence, on the whole, the book, both from its legal as well as from its medical aspect, deserves well of the profession, and will go a long way to serve the purpose of a *vade mecum*.

Diseases of the Upper Respiratory Tract: The Nose, Pharynx, and Larynx. By P. WATSON WILLIAMS, M.D., London. Bristol: John Wright & Co. 1894.

In the preface to this manual the author frankly states that he has not written it because he has anything new to say on the subject, but simply in order to supply what, in his capacity as a teacher of clinical medicine, he has long felt to be a want—viz., “an introduction to the study of diseases of the upper air-passages, that might serve as a practical guide to students and practitioners, and as a stepping stone to the larger and more comprehensive works.” With the already

large and rapidly increasing literature on this subject, it may be questioned whether such a book is called for at all at present, and further, whether, granted the necessity for such a work, it is justifiable for any one to undertake it who, with regard to the whole surgery of these parts, has no opinion of his own to offer, but can only give "the opinions of the recognised authorities."

The various diseases, their etiology, etc., are, as a rule, clearly and concisely described, and are abundantly illustrated. Of the illustrations (which are very satisfactory), a few are coloured, but most are sketches from the author's note-book. Throughout the book much stress is laid on the importance of a thorough investigation of the general health, and of careful treatment of any general diseased conditions, such as gout, rheumatism, diseases of heart, liver, etc. A comparatively large space is devoted to treatment in most cases.

The introductory chapters on Anatomy, Physiology, general methods, etc., are very disappointing. They are so short that they cannot possibly be complete, and they are not always quite accurate. For example, in Fig. 2 the bulla ethmoidalis is shown in front of the hiatus semilunaris—*i.e.*, in the position of the processus uncinatus; on p. 5 the conclusions of Gréhan, Kayser, Bloch, and M'Donald with regard to the amount of heat and moisture added to the air during its passage through the nose in ordinary respiration, are all taken together as if they practically agreed *inter se*, which is not the case (*cf.* Bloch Mundatmung); further, no reference is made to "the chemical changes that take place in the air during its passage through the nose" (M'Donald). Again, in the description of methods of examination of the larynx, Killian's method is not given.

With regard to membranous croup and diphtheria, the author insists on their essential distinctness: "unless the specific bacillus is present the disease is not diphtheria;" but, curiously enough, in treating of the diagnosis of membranous croup, bacteriological examination is not even mentioned. Very small space is devoted to diphtheria, as it "is treated at length in every text-book of general medicine," to which the reader is also referred for the general, internal, dietetic, and hygienic treatment of this disease. The whole question of the antitoxin treatment is dismissed in a paragraph of less than half a page; but, on the other hand, a fairly full abstract is given of Northrup's paper on Intubation.

The chapter on the Neuroses of the Larynx is one of the clearest in the book. A short scheme of the innervation is given, and the various conditions explained according to this;

while the actions of the muscles and the positions assumed by the arytenoids and cords are illustrated by diagrams and sketches. It must, however, be remembered that the scheme given is not universally accepted as correct.

As was perhaps to be expected, after the author's statement in the preface with regard to surgery, the descriptions of operations, the indications when to operate, and the reasons for adopting one rather than another method of operating are so shortly and incompletely given as to be of very little, if any, practical value.

Two tables of differential diagnosis—one in the section on Pharynx and Fauces, the second in that on Nose—will doubtless prove useful to students, as will also the list of formulæ for gargles, inhalations, etc., given at the end of the book.

The Urine in Health and Disease, and Urinary Analysis.

By D. CAMPBELL BLACK, M.D., F.F.P. & S.G. London: Baillière, Tindall & Cox. 1895.

THE first portion of this book is devoted to a consideration of the anatomy and physiology of the healthy kidney, and enters into the various theories offered to explain the phenomenon of urinary secretion. In discussing the theory of Kuss, we are surprised that the author makes no reference to the experiments of Posner, which definitely disproved this theory, for, on boiling freshly excised kidneys and hardening them in alcohol, no albumen was present in the capsular space around the malpighian tufts in healthy kidneys. Dr. Campbell Black then goes on to consider the normal and abnormal constituents of the urine, giving a detailed account of the various qualitative and quantitative tests in general use. We heartily congratulate him on the thorough manner in which these sections have been prepared, for we know of no book of moderate bulk which gives such complete and trustworthy information regarding the quantitative estimation of the urinary solids. A feature of the book is the discussion of the therapeutic and pathological significance of the urine and its constituents. We cannot but regret the brief and somewhat inaccurate way in which the author disposes of this important section. Thus, on page 101, we read, "Pale urine abundantly secreted, of a low specific gravity, points to cirrhosis of the kidney, with desquamation of renal epithelium and unfavourable prognosis. Here uræmia threatens." Surely a statement of this sort requires considerable qualification. Again, on page 200, "Hyaline and granular tubes, especially if

abundant, indicate chronic Bright's disease—the small, red, granular kidney." We always thought that a feature of pure interstitial nephritis was the presence of tube-casts in scanty proportion. Bacteriologists will be surprised to read on page 213 that "the so-called bacillus of tuberculosis is stated to be found in the urine of persons suffering from phthisis." We can assure Dr. Black that the bacillus is present in a not inconsiderable number of cases of tuberculosis of the genito-urinary tract if carefully looked for.

We sincerely trust that these and other inaccuracies not specified may be rectified in a future edition, for the book contains much useful information. Throughout, the book is well and copiously illustrated with woodcuts.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1894-95.

MEETING II.—12TH NOVEMBER, 1894.

The Vice-President, DR. DONALD FRASER, in the Chair.

I.—TWO PATIENTS WITH PHTHISIS IN PROCESS OF CURE— TREATMENT BY WASHED AND FILTERED AIR.

DR. EBEN. DUNCAN.

Dr. Duncan showed two cases of phthisis, one acute and one chronic, in which a cure had been effected by treatment in a hospital ward, ventilated and warmed with washed and filtered air.

CASE I.—J. M., aged 17, cork cutter, admitted to the Victoria Infirmary on the 3rd August, complaining of cough and spit of three weeks' duration. His spit had been red on several occasions. A few days before admission he had coughed up a quantity of black clotted matter.

Family History.—His father and mother are healthy, but a sister, aged 18, had been affected with phthisis for three months before the onset of patient's illness, and was supposed to be in a dying condition. The family lived in a house of two apartments.

Physical Examination on Admission.—In front, the movements of both sides of his chest were equal; percussion note normal; V. F. and V. R. equal. The R. M. over the right apex was weaker than over the left. There were wheezing and muco-crepitant râles accompanying inspiration and expiration over the whole of both lungs. Behind, there was marked dulness over the supraspinous region on the right side.

For two days after admission he had no spit; then he began to spit a nummular blood-stained sputum, in which numerous tubercle bacilli were detected on several occasions. His temperature ranged from 99° in the morning to 103° in the afternoon and evening; his pulse was from 90 to 103, and his respiration from 25 to 30. Although his temperature diminished under the administration of 5 grain doses of quinine, his condition deteriorated in other respects during the first month after admission.

On the 15th August, it was noted that there was dulness of both apices, with tubular breathing and increase of V. F. and V. R. He had night sweats, and felt weaker. On the 29th he was a little better. From this date he improved rapidly.

On the 13th September it was noted that the moist râles were almost gone, and that his general health had improved greatly. He had gained 7½ lbs. in weight in the preceding fortnight. Tubercle bacilli were last found in his sputum on 14th September. During the last fortnight of that month the moist râles entirely disappeared, and the dulness and tubularity of breathing gradually diminished.

At the present date (12th November) the only evidence of his disease is that the percussion note under the right clavicle is slightly flatter than normal, and the R. M. at the right apex is slightly feebler than at the left. Otherwise, his chest is quite normal. He has no cough, and he has gained 2 st. in weight since his admission.

With regard to *Treatment*.—During the first fortnight his chest was rubbed with croton liniment, and he had 10 minims of ipecacuanha wine, with 15 minims of solution of morphia every four hours. During the second fortnight he had 5 grains of quinine, daily, at noon. From 14th September, onwards, he had half an ounce of cod liver oil three times a day, with an inhalation of 15 minims of a mixture of equal parts of creasote and pinol, used every two hours by means of a naso-oral inhaler, worn for half-an-hour at a time.

CASE II.—W. C., aged 59, hammerman, was admitted to the
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Victoria Infirmary on 27th September, suffering from cough and spit of twelve months' duration.

Family History.—Father died of "water in the chest" at a comparatively early age; two brothers died in infancy—cause unknown; twelve cousins, children of his father's brother, died of consumption; a cousin on his mother's side also died of consumption.

History of Present Illness.—Twelve months ago he began to be troubled with a cough; nine months ago he spat blood, and the bleeding has recurred frequently since, but has never been copious. He has gradually become thinner and weaker. Two months ago he got a chill; since then he has suffered from a pain in the left chest on breathing, and his cough, spit, weakness, and emaciation have rapidly increased.

On Examination.—"The chest is emaciated, and the infra-clavicular regions on both sides are flattened. Over the right apical region in front the percussion is dull down to the second rib, and over the dull area moist râles are heard, both on inspiration and expiration. In the left apical region the percussion note is good, but the respiratory murmur is weak, and is accompanied by numerous moist crepitant râles. Behind, there is dulness on the supraspinous region on the left side, the right side being clear. Numerous small moist râles are heard over the dull area, both on inspiration and expiration. On the right side moist râles are present in the infraspinoous region."

There is no fever. The sputum is frothy and blood-stained, and numerous tubercle bacilli were demonstrated in it.

This patient was *treated* in the same ward as the preceding case, with the same advantage of washed and filtered air. He had cod liver oil; also creasote with pinol inhalations; and the dull areas of his chest were painted with liniment of iodine. Under this treatment he rapidly improved. On 27th October it was noted that the moist râles had disappeared, but there was still slight dulness over the upper part of the right lung in front, with an increase of V. F. and V. R. No dulness behind on either side, and "no tubercle bacilli could be found in his sputum."

At the present date (12th November) he is quite well. Percussion and auscultation of his chest show nothing abnormal. He has no cough and no spit. On admission he weighed 6 st. 10½ lb.; he now weighs 8 st. 8 lb.

Summing up his experience in the Victoria Infirmary, Dr. Duncan said that in a large number of cases in the early

stages of phthisis very great improvement was obtained, râles disappearing and dulness diminishing. It was of very great importance to such patients that they should breathe air chemically pure and free from particles of dust. It was in such conditions that ordinary phthisical patients did recover —e. g., at St. Moritz and other Alpine health resorts, there being no dust because the ground was covered with snow. He believed that a similar atmosphere could be obtained at home by washing and filtering the air, and supplying it at a suitable temperature and in sufficient abundance by night and by day. A hospital with such conditions would, therefore, be a great boon for the phthisical patients in the West of Scotland.

Professor McCall Anderson said that he had been very much interested in the cases, especially in the acute one, which was an example of acute phthisis, although not a very severe case of that disease, the temperature not having exceeded 103° , and the respirations 30 per minute. The cases which he had himself reported some years ago were much more acute (temperature 105° or more, and respirations over 50). The profession was evidently coming to agree with him at last in regard to the curability of acute phthisis, for many had been very sceptical (as to diagnosis, &c.) when his first cases were published. His line of treatment had been (1) to try to support the patient's strength, (2) to keep down fever, and (3) to treat special symptoms and complications. Such treatment was similar to that adopted by Dr. Duncan; but probably the hygienic conditions of the Victoria Infirmary had aided his therapeutic measures, and he only wished that similar conditions existed in the Western Infirmary.

Dr. Duncan, in answer to a question on the subject, spoke of having visited two consumptive hospitals within the previous month. One of these was at Liverpool, and was an old building situated in the centre of the town, where the air was contaminated with dust and smoke; no specially gratifying results were to be reported there. The other hospital was situated in a suburb of Manchester, and was a beautifully appointed house, with pure air and good conditions generally. In it very great improvement was obtained in the early stages of the disease. They had not there the special arrangements for washing and filtering the air admitted to the wards that were in use in the Victoria Infirmary, but in other respects the hospital was well adapted for its purpose.

In the treatment of phthisis, a pure and dustless air and good feeding were of more importance than drugs.

II.—A CASE OF BILATERAL MOBILE SPASM; QUERY, LITTLE'S PARALYSIS WITH DOUBLE ATHETOSIS.

BY DR. MIDDLETON.

Maggie T., æt. 22 years, admitted under my care early in October, 1894, presents extremely well marked mobile spasm, affecting mainly the hands and face, but not limited to these regions. When under observation the movements are continuous, and may be described as clonic rather than tonic. When attention is not directed to her, and when she is asleep, there are periods during which the movements seem to cease altogether.

In the face, the muscles affected are almost entirely those about the mouth, nose, and chin. These are in constant twitching movement, more especially on the left side, so that the mouth is rapidly opened and shut, and its left angle drawn upwards and outwards. The occipito-frontalis and the corrugator supercilii are practically unaffected. There is a good deal of winking, but it is questionable if that is to be referred to the same cause as the other twitchings. There is no nystagmus. The tongue is protruded in the middle line and kept perfectly steady. The general effect of the greater involvement of the left side of the face is to convey the impression that there may be a slight amount of right facial paralysis; but, on testing the muscles, there is no evidence of any loss of power.

The movements of the fingers and hands are very striking, but somewhat different on the two sides. When the left hand is flexed on the fore-arm the fingers are all over-extended, including the thumb, and the terminal phalanges present this over-extension in its most marked form. In addition, it is to be noted that the fingers are not kept in the same plane—each finger, beginning with the thumb, passing successively through a cycle of movements, such as are regarded as characteristic of athetosis. At other times, when the left hand is flexed, the fingers also assume a flexed position. When the left hand is extended upon the fore-arm, as a general rule the fingers become strongly flexed. In the fingers of the right hand movement is less, and of a different kind. When the right hand is flexed, the thumb and the index and middle fingers are kept extended, but not over-extended; in the ring and little fingers the proximal phalanx is so much over-extended that subluxation has been produced, while the second and third phalanges are strongly flexed.

When the hand is extended, the position of the fingers is frequently maintained, but they sometimes become flexed. In addition to the larger movements, small, fine, muscular movements are constantly present in the fingers, hands, and arms. She cannot, in either hand, apply the point of the thumb to the tip of any of the other fingers. She can feed herself with her right hand, catching the handle of a jug with the index and middle fingers, and she drinks without spilling.

There is a considerable amount of movement at the wrists in all possible directions; there is much less movement at the elbows, and still less at the shoulders. In both arms there is a degree of rigidity, but it is not constant,

As she lies in bed, there is very little jerking of the legs or feet; the great toes are somewhat extended, and occasionally twitch; the feet tend to lie slightly in the position of equino-varus. When she is getting up, and when she is walking, this position of the feet becomes much more marked, and the toes become flexed. She walks with something of a spastic gait, the feet scraping the ground, and being lifted with considerable deliberation. In walking, the feet are slightly circumducted, the left foot being in every way more affected than the right. The knee and plantar reflexes are normal, and there is no ankle clonus. There is considerable rigidity of the muscles of the thighs and legs; the thighs are so adducted as to require some force to separate them, and, when again left to themselves, they at once resume their former position.

She is very stunted, but her muscular development is great (height, 4 ft. 11 in.; weight, 8 st. 8 lb.). The muscles of the legs, thighs, and buttocks are specially large, as are also those of the fore-arms. There is a well-marked lordosis, which, along with the muscular development, tends to give her, in walking, somewhat of the aspect of pseudo-hypertrophic muscular paralysis.

No twitching is observed in any of the muscles of the trunk. Sensation is normal. Speech is not materially affected. She can swallow quite easily. Her mental condition is childish, but there is no definite mental defect. *Tache cérébrale* is very faintly developed. The circumference of the head over the eyebrows and the occiput is 20½ inches. The cardiac dullness is enlarged in all directions, but not to a great extent. There is a slight ventricular-systolic murmur, which is best heard over the pulmonic area. Temperatures are normal.

The patient's mother states that the nervous symptoms have been noticed since she was nine or ten months old. The very first thing said to have been observed was her inability to catch anything in her hands. Twitchings of the hands were noted about the same time, and have persisted ever since. It is said that for many years the hands alone were affected, and that the face was not involved till a few years ago. The mother thinks the legs have become affected only recently, but on direct enquiry she admits that the gait has always been stiff.

The patient began to walk at about two years of age, somewhat later than the other children of the family, which numbered eleven, of whom only patient (the fifth child) and a brother (the subject of some tubercular disease of the bones) are now alive. (Several of the others died of tubercular diseases.) She was also rather later than the other children in learning to talk, but her mother cannot remember the age at which she did so. She has had no convulsions, neither in infancy nor later. She has had measles and scarlet fever, and passed through both quite easily. She has had no other illness. She was able to some extent to play about with other children, and has always been able to go alone. She has never been able to dress herself, and it is only recently that she has been in any way able to help a little in the household work. She has been at school for several years. She has always been a bright, cheerful girl, and has felt keenly her inability to work. Menstruation began at the age of 14, and continued normal in every respect till a few months ago. During the past few months, between the periods, there has been a leucorrhoeal discharge, and her mother states that coincidentally there has been a falling off in health and in weight.

While pregnant with patient the mother suffered in no way, and the labour was no more difficult than any of her other ones, and was not instrumental. For half an hour or so after the patient was born, she had to be rubbed with whisky "to bring her to."

It is quite clear that this is a case to which may be applied the term "mobile spasm," first used by Gowers, but that is not a diagnosis. There are present both paresis and spasmodic movement, and the history bears that these have been observed since the girl was a few months old. It seems to me to be more than probable that the parietic symptoms had been present since birth, but that they had escaped observation. Be that as it may, the case has many features

in common with what may be called Little's paralysis. In his excellent paper¹ Dr. Little has summarised a great many cases of which spastic rigidity was the special feature. That is present here. In only a few of his cases were "choreiform movements" noted. The pathology of such cases, according to Little, is an effusion of blood on the surface or into the substance of the brain or cord, from capillary hæmorrhage, due to difficult labour, suspended animation, &c. In the present case there is just such a history as he believes sufficient to give origin to the hæmorrhage—a history of temporary asphyxia after birth.

The movements may be more correctly described as athetotic than as choreiform; while they do not present the very slow movement met with in typical athetosis, they are rhythmical and entirely devoid of the irregularity and amplitude of the choreic movements. It is a question, therefore, whether this case should not be described as double athetosis. Though at first the term athetosis was limited to unilateral affections, it has now been frequently applied to bilateral spasms, and Dr. Audry of Lyons has recently published a book on double athetosis,² in which several of Little's cases are quoted, and one or two from a paper by the late Dr. Ross.³ From a perusal of these, I consider the present case similar to them, and that therefore the diagnosis, Little's paralysis with double athetosis, would be essentially correct.

No attempt has been made to treat the patient. There can be no doubt that the condition is now permanent, dependent on more or less sclerosis.

In connection with the previous case I wish to show another, which seems to me in many respects analogous. The patient is a girl, 12 years of age, who was recently admitted to the Infirmary on account of a paralytic condition. She is now unable to walk without support. In walking the feet are dragged along the floor, and there is a tendency to circumduction. When the feet are hanging, they assume the position of equino-varus. There has been at times rigidity

¹ "On the Influence of Abnormal Parturition, Difficult Labours, Premature Birth, and Asphyxia Neonatorum on the Mental and Physical Condition of the Child, Especially in Relation to Deformities," *Trans. Obstetrical Society of London*, vol. iii, p. 293, 1862.

² *L'Athétose Double et les Chorées Chroniques de l'Enfance*. Par J. Audry, Médecin des Hôpitaux de Lyon. Paris, 1892.

³ *Brain*, vol. v, p. 344, 1883.

of the limbs, and the knee-jerks are exaggerated. The muscles are well developed, and the trunk also has an exceedingly thick covering of soft tissues. The child is stunted in her growth, and evidently somewhat defective in intelligence. Her speech is very peculiar, the words being slowly drawled out and slurred, so that it is not easy to understand what she says. The palate presents the so-called Gothic arch.

The general appearance is somewhat suggestive of cretinism. This case, however, is very similar to some recorded by Little, and enquiries were, therefore, made as to the early history. The mother is far from being an intelligent woman, so that she could not remember much about the child's infancy. She did not remember any delay having taken place at the birth. It was three years before the child could walk, but she cannot say how old she was when she learned to speak. The paralysis is said to have come on five years ago, after enteric fever, but the gait had always been peculiar.

Dr. Fraser, after expressing indebtedness to *Dr. Middleton* for having brought forward these cases, spoke of the conditions present as being no doubt developmental, and as having their probable origin before parturition. He had had some experience of such paralytic conditions in the rearing of chickens by incubation, a remarkably large proportion of such cases occurring. The cause was there said to be tremor of the ovum.

In reply to *Dr. W. L. Reid*, *Dr. Middleton* gave details as to the family histories.

Dr. W. L. Reid said that there was too much of "*post hoc, propter hoc*," in charging such cases to labour and its difficulties. Although, from his experience, he found that the later children in large families were apt to have nervous troubles, this would not apply to the present cases. There were very numerous cases of labour in which there was very marked compression of the head of the child from the difficulties of parturition, and yet no subsequent nervous symptoms developed.

Dr. R. M. Buchanan had seen similar cases at the Sick Children's Dispensary. In one hemiplegic case there had been one-sided mobile movements very similar to those in *Dr. Middleton's* case. He had found on enquiry in such cases that there had been either a long or a difficult labour. That would seem to have something to do with the etiology of the condition. The head looked small in *Dr. Middleton's* first case, and this had occurred also in *Dr. Buchanan's* experience.

When the nervous condition was unilateral, the one side of the head was generally small. Dr. Buchanan thought that the second case was rather like Friedreich's disease.

Dr. Middleton, in reply, said that Little had had a remarkably large experience in orthopædic practice, and that thus his cases were selected ones. He did not dogmatise, though there was good reason to believe that there was something to be said for his theory, which pointed not so much to injury to the head from actual difficulty in delivery, as to the difficulty in getting breathing started, the occurrence of suspended animation being in his view the origin of the lesion leading to the paralysis.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

Opium in Exophthalmic Goitre and in Heart Disease.—In a lecture on the "Clinical Uses of Opium," Dr. Cheadle expresses the opinion that nowadays the systematic use of this remedy is too much neglected. He thinks that so much has been said of the ill effects of the constant use of opium that people have become afraid of it. The substitution of such drugs as chloral, sulphonal, &c., has meant not only the loss of valuable therapeutic effects, but also the establishment of habits producing results as bad as, if not worse than, those due to the constant use of opium. Dr. Cheadle, too, deprecates the almost universal use of hypodermic injections of morphine instead of the administration of opium by the mouth. The former practice he regards as less safe than the latter. Referring to the treatment of exophthalmic goitre, he recognises the value both of digitalis and belladonna, but adds that "opium in full doses and at regular intervals not only soothes the nervous distress and palpitation, but arrests the diarrhoea and vomiting which all other drugs seem powerless to control." In the later stages of mitral and other cardiac affections, when cough, restlessness, and sleeplessness are troublesome, Dr. Cheadle finds opium in moderate doses and given by the mouth of great service. He does not share the fear that its depressant action on the respiratory centre renders it dangerous in these conditions.

The lecture is one which may be consulted with advantage. It is thoroughly practical, and Dr. Cheadle gives well-considered reasons for the faith that is in him.—(*Clinical Journal*, 26th September, 1894.)

Pilocarpine in Meniere's Disease.—Three successful cases are reported from Moure's clinic at Bourdeaux. In all there were the typical symptoms—noises, vertigo, nausea or vomiting, and deafness to osseal, as well as aerial, vibrations. The drug was given by the hypodermic method, the dose being gradually increased from a twenty-eighth to a quarter of a grain. One patient was cured after eight, a second after thirteen, and the third after fifteen doses. In only one of the cases was there any history or evidence of aural disease. The writer suggests that the action of pilocarpine is similar

to that which it exerts in promoting the absorption of fluids from the serous cavities when these are the site of dropsical accumulation.—(*British Medical Journal*, 29th September, 1894.)

Chloral Hydrate as an Antipyretic.—Sir Benjamin Ward Richardson, in a paper on "The Properties of a True Antipyretic," speaks in high terms of the value of chloral hydrate as an agent for reducing temperature. "Its results," he says, "surpass all others." The paper, somewhat unfortunately, does not give any information with regard to the doses employed.—(*The Asclepiad*, No. 41, vol. xi.)

Scopolamine, Tropacocaine, Hyoscyne Hydrobromate.—Mr. Bokenham has endeavoured to determine the value of these drugs. Scopolamine he finds to be a powerful mydriatic. Like atropine, it completely paralyzes the ciliary muscle. The paralysis of accommodation persists for about a day and a half. No untoward effects were noted, and a dose equal to an amount of atropine which would paralyse completely the inhibitory power of the vagus produced only slight acceleration of the pulse. It was further observed that a solution of one-fourth per cent had quite as complete an action on the pupil as a 1 per cent solution of atropine, but without the production of increased tension in the eyeball.

Tropacocaine applied to the eyeball in the form of a disc containing one-thirtieth of a grain of the drug produces local anæsthesia. The anæsthesia is of shorter duration than that following the use of cocaine, but is not, as in the latter case, accompanied by dilatation of the pupil or paralysis of accommodation.

Hyoscyne hydrobromate is a mydriatic. Its action is rapid and complete, and is more prolonged than that produced by homatropine. It does not, like atropine, increase the intraocular tension.—(*British Medical Journal*, 15th September, 1894.)

Trional in Delirium Tremens.—This new phenol derivative has been tested by Dr. Russell Bellamy in twenty-five cases of acute delirium tremens. The results were found to be extremely good, the delirium being rapidly subdued and sleep produced. Dr. Bellamy concludes that trional is more rapid in its action and more safe than other hypnotics; that it has a stimulating rather than a depressing action on the heart and respiration; and that it also exerts an antipyretic influence. The dose administered was 20 grains, followed if necessary after half an hour's interval by 10 grains; if this had no effect in the course of an hour, a further dose of 20 grains was ordered.—(*New York Medical Journal*, 21st July, 1894.)

Pemphigoid Eruption Following the Administration of Copaiba.—G. W. Sequeira, M.R.C.S.—The eruption appeared after the patient had taken eight copaiba capsules. It took the form of erythematous patches on the face and limbs and, in addition, the skin over each tendo-Achillis was raised into bullæ, some of which were nearly as large as a hen's egg.—(*British Medical Journal*, 17th November, 1894.)

Sulphocarbolates in Purpura Hæmorrhagica.—Dr. Sansom reports a very severe case successfully treated by the administration of sodium sulphocarbolate—half a drachm every four hours. The remedy was steadily persevered with in spite of the fact that at first little or no improvement was produced. There were features in the case—e.g., the existence of pyrexia—that suggested the existence of some infective agent as a cause, and Dr. Sansom quotes a second case treated in the same way and with a similar satisfactory result.—(*Lancet*, vol. i, p. 1375, 1894.)

The Physiological Effects of Arsenic.—Two cases were noted by Mr. Jonathan Hutchinson. In the first, a female, æt. 40, the remedy had been continued for more than a year and the skin had become deeply

pigmented, the heels cracked and sore, and the palms and soles very dry. There were also numerous large black freckles on the face. The second patient suffered from severe palmar and plantar psoriasis. He was ordered nine minims of arsenical solution with a sixteenth of a grain of tartarised antimony thrice daily. In the course of a fortnight he had greatly improved, when suddenly the palms and soles became exceedingly tender, felt hot and smarted, circumstances which disappeared when the arsenic was discontinued.—(*Archives of Surgery*, vol. v, pp. 364, 366.)

Results of Iodide and Bromide of Potassium.—Mr. Hutchinson records three cases of patients who experienced discomfort when taking iodide of potassium. One had a constant sense of chilliness, a second complained of aching and swelling of the legs, whilst the third found that the remedy depressed him and almost “deadened his brain.” The same author reports a case of severe bromide eruption in a child of 14 months. The eruption was confined to the face and limbs, and consisted of thick tuberculous papules which on the lower limbs had ulcerated. The skin between the papules was quite healthy.—(*Archives of Surgery*, vol. v, p. 365.)

Ferratin in Cases of Anæmia.—This organic preparation of iron introduced by Schmiedeberg (see February number, p. 157, 1894) has been tested clinically by Mr. John Harold. He found that in three cases of severe anæmia the preparation appeared to exert a remarkable hæmatinic effect; it did not interfere with digestion or produce any constitutional disturbance. In one of the patients, iron in the form of a scale preparation, or as reduced iron, had been given previously for twelve months without apparent benefit.—(*Practitioner*, August, 1894.)

Memorandum.—The treatment of neurasthenia is the subject of a very practical paper by Dr. Savage. It may be usefully consulted by practitioners dealing with this troublesome condition.—(*British Medical Journal*, 8th September, 1894.)

PHYSIOLOGY.

By WILLIAM SNODGRASS, M.A., M.B., C.M.

The Influence of Altitude on the Number and Size of the Red-Blood Corpuscles.—Dr. A. Mercier (*Archiv. de Physiolog., Norm. et Patholog.*, October, 1894) concludes, from a prolonged and extensive series of observations, that (1) the greater the height above sea-level at which we live, the greater is the number of coloured corpuscles in unit volume of blood; (2) in proportion as we ascend, that is to say, pass from a region of higher to one of lower atmospheric pressure, in like proportion does the number of corpuscles in unit volume increase; (3) the numerical increase of coloured corpuscles is characterised by a new formation of cellular elements of smaller volume; (4) this polycythæmia, due to higher altitude, lessens as we pass from a place of low to one of higher pressure; (5) the numerical increase has been found in every one examined in this respect, and is independent of variations of age, sex, state of health, profession, or social position; (6) it is a physiological adaptation to a new condition of environment. With any extensive change in the barometrical pressure we must have a variation in the number of coloured corpuscles of the blood.

Observations on Nervous Shock.—H. Roger has noted the interesting fact (*Archiv. de Physiolog., Norm. et Patholog.*, October, 1894) that in frogs during the condition of shock (say from a Leyden jar) the spinal cord is insensible to the action of strychnine, and the muscles to that of veratria. This is not due to absence of absorption, nor to disturbances of the central or

peripheral circulation. The poison is absorbed, circulates in the blood, and yet shows no effect; either the tissues are unable to react—which is improbable, especially in regard to the muscles—or the poison does not pass from the vessels to the tissues. This observation may be regarded as an extreme instance of the well-known fact that in shock strong remedies—stimulants, for example—do not exercise their usual influence upon the system.

The Resistance of Living and very Vascular Tissue to Gastric Digestion.—John Hunter, in 1772, pointed out the *post-mortem* digestion of the stomach and adjoining organs by the gastric juice. He attributed the resisting power of the living organ to “the living principle.” In 1856, Pavy showed that the leg of a frog or the ear of a rabbit, introduced through a gastric fistula into the stomach of a dog, would be then digested. Pavy attributed the self-preserved power of the living stomach walls to the presence of alkaline blood and lymph neutralising the acid gastric juice. By stopping the circulation at certain points he produced autodigestion of small areas. Claude Bernard thought the protection was due to the mucous coating, but Schiff observed a wound of the mucosa for six weeks, without softening or autodigestion of the deeper coats.

Gaglio injected gastric juice into the bladder of living rabbits, after ligation of the ureters, and no digestion occurred.

Gaspardi and Viola have detached the spleen from its usual position, and maintaining its vascular integrity, introduced it into the stomach through an artificial opening, and it has remained there as long as sixty-four hours undigested. But, as peritonitis had supervened, digestion may have been inactive.

Ch. Contejean (*Archiv. de Physiol., Norm. et Patholog.*, October, 1894), to test this further, has introduced loops of the animal's bowel into the gastric fistula. The animals have recovered, and lived more than five weeks. One dog, operated upon on the 27th of March, was killed on the 4th of May. Several small perforations of the loop of bowel were found, but the wounds had healed by the formation of a continuous epithelial coat between the mucosa of the stomach and intestine; and only at one small area was the intestinal muscle laid bare.

M. Contejean concludes that the stomach is preserved from autodigestion by the epithelium of the mucosa, and by the circulation maintaining the vitality of this epithelium. The epithelium acts, perhaps, by exercising a selective rôle in absorption, hindering, whilst living, the active principles of the gastric juice from penetrating into the depths of the walls of the stomach (experiment of Sehrwald). When the epithelium is absent, the circulation of the blood sweeping away the digestive juice as the mucosa absorbs it, permits lesions of the walls to cicatrise, and clothe itself anew with a covering of indispensable epithelium. The importance of these observations in connection with operations upon the stomach and the treatment of gastric ulceration is evident.

The Excitability of Rigid Muscles.—J. Tissot (*Archiv. de Physiol., Norm. et Patholog.*, October, 1894), as a result of experiments, concludes that (1) cadaveric rigidity is a phenomenon not incompatible with the life of muscles, and its appearance is not a proof of death, that it can appear in living muscles which may remain excitable (electrically, mechanically, or chemically) for a long time afterwards; that (2) the vapour of chloroform acts as an excitant, and not as a coagulant of muscle; and that (3) the sensibility of muscles to certain chemical reagents persists after the appearance of rigidity and disappears last (except in the fetus, where it has seemed to disappear sooner than mechanical excitability). The fact that contractility might be demonstrated in muscle washed out with arterial blood even several hours after the appearance of rigor mortis has been long known, and affords support to the proposal recently made in America to resuscitate criminals who have been put to death by powerful currents of electricity.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Sugar Treatment of Uterine Inertia.—Dr. Mosso records, in the *Semaine Medicale*, 1894, p. 41, eleven cases of uterine inertia during labour. These were treated with sugar in doses of one ounce dissolved in water. In a few cases the dose had to be repeated in an hour. In ten cases the result was good, active contractions setting in in from twenty-five to forty-five minutes. The sugar seems to excite natural pains, and is not open to the objection urged against ergot, which sets up a continuous tonic contraction. Mosso ascribes the result to the action of sugar in exciting unstripped muscular fibres.

Version in the Prone Posture.—Dr. Mensinga of Flensburg (quoted in *Medizin. Novitäten*, November, 1894, from *Aerzt. Rundsch.*) advocates the prone posture in preference to the dorsal for the operation of version. In a case to which he was called Dr. Mensinga attempted version in the ordinary continental dorsal position, but was unable to grasp a knee. Keeping his hand in the uterus, he made the patient turn on to her face and lie on her abdomen. The pillows were drawn down to support the thorax down to the abdomen. He was then able to grasp the knee and complete the version. In a second case he was again able to turn in the prone position after failing with the patient in the dorsal position. He explains this by stating that the pressure of the patient's weight on the uterus forces down that organ, at the same time pushing down the vagina. The genital canal, including the os uteri, becomes wider at the expense of its length, and the hand is more easily passed through it as it, so to speak, is passed over the hand, while the foetal parts are at the same time pushed down towards the hand. He further finds this posture a useful one for watching the perineum.

Gangrene of the Vagina from Tincture of the Chloride of Iron.—Dr. Nammack of New York read a paper on this subject (reported in the *New York Medical Journal*, August, 1894). He warns the practitioner against the dangers of expectant treatment in cases of incomplete abortion, advocating the use of the curette and intra-uterine irrigating tube. As a warning against the treatment of the mere symptom of hæmorrhage, he relates the following case:—J. K., aged 30, 6-para. Last child two years ago. Since that time periods regular till eight months ago, when they ceased for four months. Hæmorrhage then set in, lasting three months, till patient consulted a physician, who plugged the vagina with cotton saturated with the tincture of chloride of iron, using in all four ounces of the tincture. She came to hospital two days later complaining of pain, dysuria, inability to walk, and hæmorrhage. On examination she was found anæmic, with rapid, feeble pulse; temperature fluctuating between 100° and 104°, with chills. Locally the whole vaginal mucous membrane, including that covering the cervix uteri, was covered with thick blackish sloughs. Douches and boroglyceride tampons were used, and the dead tissue removed as soon as possible. The granulations were dusted with iodoform, and the vagina packed with iodoform gauze. Later, the use of the vaginal glass plug will be necessary to prevent stenosis. Dr. Nammack refers to similar cases recorded where iron chloride and persulphate had been used in strong solutions.

Palliative versus Surgical Treatment of Rupture of the Uterus.—Dr. Charles M. Green read a paper on this subject before the American Gynecological Society (reported in the *New York Medical Journal*, September, 1894). By palliative treatment Dr. Green said he meant sustaining the patient by nourishment and stimulation, the use of antiseptics, and the arrest of hæmorrhage by means of packing, and so forth. Laparotomy was attractive, but did not offer the good results that it seemed to do. He

reported several cases where recovery had taken place after rupture under palliative treatment. Unfortunately, no details are given in the report before us. He thought it wrong to expose the patient, already in a dangerous condition, to the further shock of an abdominal section, and the fallacious attempt to stop the hæmorrhage by suturing the uterus. The tear was usually a separation of the tissues in an uneven jagged manner impossible of apposition, and the tissues were generally so friable that sutures would not hold if inserted. The palliative treatment consisted of compression bandages, cold irrigation, tamponing the seat with wicking and gauze, and drainage. Laparotomy should never be attempted unless the issue seemed sure to be fatal, and the child had escaped through the tear into the abdominal cavity, and could not be extracted through the natural passages. Under such circumstances the abdomen should be opened, the child removed, and the uterus sutured. Manipulation and bimanual pressure should be used to ensure uterine contraction. Serious hæmorrhage was always present, but a tampon properly applied was usually sufficient. There was no need of irrigating the abdominal cavity through the rent unless the amniotic fluid had been emptied into it. What would be better was the injection of a hot physiological salt solution into the cavity, from which absorption would take place, and the volume of the blood be increased. The peritoneum was tolerant of aseptic blood, so there was no need to get rid of it at once. Laparotomy would be justified where the hæmorrhage was uncontrollable.

In the discussion which followed, the President, Dr. Lusk, speaking from personal experience, said that in *incomplete* rupture situated in the posterior wall of the uterus there was no doubt palliative measures were the proper thing. He had always found that, if the tear was situated anteriorly, the case terminated fatally. Where the rupture was complete, he would feel better if he brought the peritoneum together and closed up the wound; as for sewing up the uterus, it was a fallacy and a snare. Where the women recovered without having thus much done, they were invalided; they would seem to do well for a time, but their existence would be shortened. He did not think much of Porro's operation in this class of cases. He advised complete removal of the uterus where the tear was considerable and the tissue much infiltrated, as offering the best results.

Dr. Polk thought it best to deliver by the natural passages if possible, but also to make a small opening above and cleanse the abdominal cavity. In cases where he had irrigated from the vagina, and subsequently opened the abdomen, he had found the irrigation had not cleansed the peritoneal cavity.

Dr. Murray related four cases of apparently incomplete rupture—that is, into the broad ligaments, not into the peritoneal cavity. Two had recovered under palliative treatment alone.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Blepharitis and Ametropia.—That the first thing to be done in treating the conditions of the eyelids included under the name of blepharitis is to have any errors of refraction thoroughly corrected is a truth which many teachers have proclaimed for a number of years. "I want to study eye diseases, not optics," is, unfortunately, still the attitude of many students. They, therefore, eagerly copy down prescriptions and formulæ, as being matters of the first importance, while the really crucial point—the estimation of the refraction—is neglected.

Although the subject lacks novelty, yet Dr. Ernest Clark has done well to remind us of it in the current number of the *Ophthalmic Review*. Dr. Clark believes, and in this we agree with him, that in all cases of severe blepharitis we have to deal with ametropia as one of the causal factors. That it is not the only one we all admit, for there are many cases of ametropia without

blepharitis. The first indication, then, for the successful treatment of blepharitis is the estimation of the refraction, and not the applications of lotions or ointments, although these form important adjuncts.

A New Method of Treatment for Vascularised Cornea.—Mr. Scott, of Cairo, makes a suggestion that, when the vessels are few in number, the best treatment is to take a fine Graefe's knife, and with it slit up every individual vessel. He says that, in suitable cases, this gives far better results than either peritomy or syndectomy so far as clearing of the cornea is concerned.

"**Traumatic Paralysis of the Abducens Nerve**" is the subject of an extremely good paper by Purtscher in the last number of *Knapp's Archives*. It is one of the most carefully written papers that we have seen for some time, and ought to be of service not only to ophthalmic practitioners, but also to surgeons and physicians. Its great length prevents our doing more than giving our readers some of the author's conclusions. These are—that traumatic paralysis of the eyeball are not at all infrequent; and, curiously enough, that paralysis of the sixth is very frequently bilateral. According to the statistics which he has collected, the lesion is bilateral in about 30 per cent of cases. In explanation, the author says "we should especially expect to find bilateral paralysis when a force acts symmetrically upon both halves of the head."

He points out a fact of very great importance—"The direction of a fracture depends upon the line of force, and that the anatomical arrangement of the bones is of secondary importance." Altogether, it is a paper which merits attention from every medical practitioner, and our only regret is that we cannot give it to our readers in extenso.

Suture of the Cornea after Cataract Extraction has been recently revived by Kalt. He is one of the operators who has returned to the simple extraction without iridectomy. Now, the great objection to this operation is the frequency of prolapse of the iris. Kalt endeavours to prevent this accident by bringing the lips of the wound together by a single point of suture. The idea is by no means new, for it was practised by Williams, of Boston, in 1867, still the return to the simple extraction has again drawn public attention to the proceeding. Kalt describes a special suture of his own which seems to differ from all previous ones, and his method is looked upon with favour by so distinguished an operator as Knapp, at whose request the communication has been made.

Books, Pamphlets, &c., Received.

- Manual of Diseases and Deformities of the Spine**, by R. L. Swan. With 33 Lithographic Illustrations. Dublin: Fannin & Co. 1894. (7s. 6d.)
- A Manual of Ambulance**, by J. Scott Riddell, C.M., M.B., M.A. With Numerous Illustrations. London: Charles Griffin & Co. 1894. (4s.)
- Index Catalogue of the Library of the Surgeon-General's Office, U.S. Army. Authors and Subjects.** Vol. XV: Universidad—Vzoroff. Washington: Government Printing Office. 1894.
- Meteorology, Practical and Applied**, by John Wm. Moore, B.A., M.D. London: F. J. Rebman. 1894. (8s.)

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THE
GLASGOW MEDICAL JOURNAL.

No. II. FEBRUARY, 1895.

ORIGINAL ARTICLES.

CASE OF TUBERCULAR PERICARDITIS WITH
DOUBLE PLEURISY AND LARGE EFFUSION—
PULSUS PARADOXUS.¹

By SAMSON GEMMELL, M.D.

J. M'C., stonemason, æt. 44, was admitted to the Western Infirmary, Ward XI, on 25th August, 1894, complaining of shortness of breath and palpitation on exertion, with a feeling of general weakness, the symptoms being of two weeks' duration. Patient stated that he had always enjoyed good health till the occurrence of the illness which caused him to seek admission to hospital. He did not know of any cause for that illness, but thought he might have caught cold while standing at a street corner late at night.

On 10th August, fifteen days prior to admission, he experienced a feeling of "chilliness throughout his body," and two days later his hip, elbow, and shoulder joints became stiff and painful on movement, but neither ankles nor knees were affected, nor was there any swelling of any of the joints. A few days later he became "much fevered," and perspired considerably. On 20th August (*i.e.* ten days after the supposed commencement of the illness) he experienced some shortness of breath and palpitation on exertion. Two days later he

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society, on 14th December, 1894.

became conscious of some "pain over the heart," and this remained almost constantly present till admission to hospital. On admission, patient was evidently very breathless, and complained of a beating at the heart. His face was pale, the lips cyanosed, as were also the finger nails. Respirations numbered 36 per minute, but they were not laboured. As he lay in bed he found it necessary to have his head slightly raised. The pulse was rapid—120 per minute; rather weak; very soft and compressible; markedly dicrotic to the finger, and hyperdicrotic as demonstrated by the sphygmograph.

The cardiac area had the following limits:—The upper border was on the fourth rib; the left border just to the outer side of the nipple; and the right border corresponded to the left edge of the sternum. The apex beat of the heart was neither visible nor tangible. On auscultation, pericardial friction was audible, most distinctly over the lower half of the sternum, but also over the whole of the præcordium; but on passing beyond the limits of cardiac dullness, the friction was scarcely audible except where it was evidently carried to the right by the sternum. There was no enlargement of the liver dullness, the vertical measurement of which was $4\frac{1}{2}$ inches in the nipple line. Auscultation and percussion of the lungs gave satisfactory results.

The urine was slightly turbid, with a deposit of urates. Its specific gravity was 1020, and it was not found to contain albumen.

On 20th September (*i.e.* twenty-five days after admission) it was noted as follows:—

"The pericardial friction sound, very audible for the first three weeks of residence, has disappeared within the last week, and at no time during its course was there such extension of the præcordial dullness as to lead to the idea of considerable pericardial effusion. Some time ago, however, there were evidences of pleurisy in the left lateral region, associated with effusion; and yesterday (19th September) the signs of embarrassed breathing, with a rapid and irregular pulse, led to the tapping of the left pleural sac, 41 oz. of fluid being withdrawn. The pulse since admission has ranged about 120 (its rate to-day), and on most occasions, when observed by the finger or registered by the sphygmograph, it has betrayed a decided tendency to the *pulsus paradoxus*—*viz.*, fairly vigorous pulse waves during expiration, with great diminution and in some cases almost total abolition during inspiration. It is to be noted, moreover, that over the cardiac area, although the sounds are rather faint and distant,

there is no irregularity of them, and the feeble radial expressions are not associated with any such diminution of the cardiac sounds as to infer that they are the result of inefficient cardiac contractions.

"The temperature has had a daily febrile range, at first with a maximum of 102.4° , but latterly of less scope, so that while the morning temperatures are normal or subnormal, the evening rise rarely exceeds 100° . The patient coughs little, sleeps well, and takes a liberal allowance of food. It cannot be said, however, that the drug treatment has had any very sensible effect. Digitalis, iodide of potassium, strychnine, have all had a trial, but no substantial result can be attributed to them. Lately, with a suspicion that some conditions in his case might be of specific origin (the patient denies such), he has had pot. iodid. and pot. ferri tart."

The fluid effusion in the *left* pleural sac continued to recur, and rendered repeated tapping of the chest necessary; and on the 26th of September there was evidence of effusion in the *right* pleura, which was punctured and 29 ounces of clear serous fluid withdrawn, after which pleural friction of a coarse type was audible over the right front and lateral regions.

Fluid re-accumulated in both pleuræ, but otherwise there was no material change in the condition of the patient during the month of October, and on 10th November the following note was made:—

"The progress of this case has been by no means satisfactory. The pleural sacs have been tapped since 2nd October, fourteen or fifteen times, the left much more frequently than the right, occasionally the two simultaneously. The quantities of fluid abstracted have been rarely below 50 oz., sometimes as high as 65 oz., and the total quantity abstracted by *paracentesis thoracis* since admission has been 7 galls. 2 oz. The fluid has on all occasions been of a clear amber colour without suspicion of blood admixture, and with no flaky fibrinous elements. Pleural friction has usually been very audible toward the bases behind, and in the lateral regions after the abstraction of fluid.

"For some time past there has been a tendency to oedema of the feet and legs, more pronounced of late; indeed, the oedema now has encroached upon the abdominal wall. So far, no ascitic accumulation has been detected, though frequently looked for. The urine continues non-albuminous and is fairly abundant, although, even when at its highest (upwards of 90 oz., and possibly in response to some of the many

diuretics tried) it does not appear that the re-accumulation of fluid in the pleural sacs was any less rapid than when the urinary secretion was much scantier.

"The pulse continues as to rate and characters much as already described—viz., 120—and of the *paradoxus* type. There has been no pericardial effusion, however. (Query—Is not this owing to pericardial adhesion from the acute inflammation?) The lungs in front have been carefully scrutinised from day to day, but it cannot be said that there is any evidence of physical signs of intra-thoracic growth such as might well account for the conditions; notably, although there is a certain amount of diminished resonance in the lower aspect of the manubrium sterni, it is not such as to encourage the idea of substernal growth, but may probably be due simply to a tolerably thick bone. R.M. in the two lungs, where fluid does not interfere, is fairly full and good, and of equal volume on the two sides. There has been a good deal of short cough, but little expectoration, and that in no way characteristic. Appetite is fairly sharp and digestion undisturbed, and yet it is quite obvious that his nutrition has manifestly failed, for not only has he lost flesh, but his complexion has become very sallow. Respirations have remained hurried, but there has never been anything like manifest dyspnoea, to say nothing of orthopnoea, except when pleural effusion was high. The temperature remains practically apyretic, 99° being the average evening range."

On 14th November, four days after the above conditions were detailed, the urine was observed, for the first time, to contain a decided quantity of albumen, and on the following day there was evidence of some ascitic accumulation, though only to a very moderate degree.

During the week ending 23rd November, the general oedema increased, the legs and feet became very much swollen, and the abdominal walls extensively infiltrated. To relieve this condition, the feet were punctured, and a quantity of fluid withdrawn from the cellular tissue. The pleural effusion continued to increase, though with less rapidity, and on 23rd November 44 oz. of clear serous fluid were withdrawn by puncture of the left pleural sac. This was the last occasion on which *paracentesis thoracis* was performed. The quantities of fluid removed from the pleuræ during residence of patient in the Hospital amounted to 2 galls. 1 pint 14 oz. from the right pleural sac, and 5 galls. 5 pints 19 oz. from the left—total, 7 galls. 7 pints 13 oz.

It is further noted, under date 23rd November, that the

urinary output had considerably fallen, 28 oz. being the largest quantity passed for the previous six days, and that in spite of diuretics. Trousseau's wine, the potash salts, and a liberal allowance of gin had been tried with no appreciable result, and on 23rd November, tinct. digitalis was again resorted to, in doses of 10 minims every hour. The administration of this drug was continued over a period of seventy-six hours, 690 minims in all being given. No sensible effect was produced either on the pulse rate (which continued from 112 to 120) or on the quantity of urine. Moreover, the pulse lost greatly in strength, so that by 27th November it was difficult—almost impossible—to count the radial beats, though the cardiac pulsations still retained fair strength as gauged by auscultation. The urinary secretion had rather diminished than increased under the use of digitalis; and on 27th November, diuretin in doses of 15 grs. every three hours was substituted, but patient did not live long enough to allow of its action being observed. He died suddenly on the morning of 28th November, apparently from cardiac failure. During the last few days of life the accumulation of fluid in the pleuræ was much less rapid than formerly, and accordingly the respiratory distress was considerably less, but the general œdema increased, and extended high up the back and over the abdomen.

Post-mortem Report.—Summary: *Tubercular pericarditis with adhesion and great thickening; tubercular pleurisy; old and recent tuberculosis in mediastinal glands; traction diverticula of œsophagus.*

External Appearances.—There is marked œdema of both lower limbs, and small marks of punctures on the dorsal aspect of both feet. The hands are livid and œdematous. The chest wall is œdematous, especially posteriorly.

Thorax.—The external surface of the pericardium presents many adhesions to the parts around—viz., to the posterior aspect of the sternum, to the lung on either side, and, posteriorly, to the mediastinal structures. In separating some of the adhesions to the lung small white nodules are displayed in the midst of the adhesions. The external measurements of the heart and pericardium are obviously greatly increased, especially in the lateral direction, the transverse measurement reaching over 15 cm.

The pericardium is firmly adherent in every part, and thickened to an extraordinary degree. The thickening is most obvious over the left ventricle and right auricle. Over the left ventricle it attains to a diameter of 2·5, and over the

right auricle of 2 cm. In the thickened pericardium it is possible to distinguish a layer belonging to the visceral, and one belonging to the parietal pericardium, and a line of junction between the two being generally distinguishable, but somewhat vaguely. The visceral layer is somewhat homogeneous, but generally rather opaque, whilst the parietal layer presents numerous larger and smaller nodules, which are generally caseating. The visceral layer is entirely superficial to the adipose tissue, so that there is a comparatively loose layer of fat between the pericardial lesion and the muscle, at least over the greater part of the heart. There is a great number of enlarged glands in the mediastinum, both anterior and posterior. These are for the most part hard from calcification, but some of them present recent tubercles. There is a mass of such glands in front of the trachea, and slightly to the right of the middle line, to which the superior cava and right innominate vein are firmly adherent. In the course of this adhesion the latter vein presents a small dimple, apparently the opening of a branch, but it is impervious even to a bristle. The œsophagus is firmly adherent to a mass of glands just beneath the bifurcation of the trachea, and the wall of the œsophagus is dragged outwards, so as to form little pouches. There are two places where this has occurred, alongside of each other, and each of the two has a bridge subdividing it into two. The pouches have a depth of fully half a centimetre.

Both lungs are adherent above, and both present where they are non-adherent a thin layer of fibrin. Small miliary tubercles are visible, but not very abundantly, on the pleural surface. In the lungs there is a considerable number of hard pigmented nodules, especially in the upper lobes, but there is no trace of lobular tuberculosis.

Abdomen.—The spleen is enlarged. A few opaque nodules are visible on the cut surface.

The kidneys are somewhat enlarged. In the right two or three grey tubercles of some size are visible on removing the capsule.

The liver presents nutmeg markings almost limited to the right lobe, and scarcely penetrating to its under surface.

On further dissecting the parts the aorta in the posterior aspects of the arch is found somewhat adherent to the glandular mass. It is seen also that the phrenic nerve on both sides is adherent to, and apparently partially involved in, the pericardium.

On dissecting the œsophagus a small irregular cavity is opened into, behind the diverticulæ, but no communication is meanwhile discovered.

On *microscopic examination* it is found that the visceral and the parietal pericardium show tubercular new-formation, and that between them there is a thin, irregular layer of fibrin.

Remarks.—In this case several interesting points emerged during the period of observation.

In the first place there was the question of diagnosis. On the patient's admission, considering the recent and acute character of his illness, the occurrence of fever with perspiration, and stiffness and pain in the joints, it was thought not unlikely that rheumatic mischief had been the starting point of the symptoms—a rheumatic seizure, in which the brunt of the attack had fallen on the serous membranes rather than on the articular surfaces. Subsequently the idea of specific disease suggested itself, but there were no definite indications of its presence, and the patient denied its possibility. Nevertheless, iodide of potassium and potassio-tartrate of iron was tried, but with no appreciable benefit. The question as between tubercular and malignant disease was also considered, but search for any evidence of intrathoracic growth, or of tubercular mischief in the pulmonary apices, yielded only negative results. The diagnosis had accordingly to be left an open question.

As it was almost certain that there was extensive pericardial adhesion, careful search was made for the signs indicative of such a condition. There was no visible apex beat, and palpitation detected only a feeble impulse. There was, however, none of the systolic recession or dimpling of the intercostal spaces in the apex vicinity such as is described, and I have seen, in adherent pericardium. But the absence of such a phenomenon might, in the present instance, be well accounted for by the enormous thickening of the pericardium (in some places it was fully an inch in diameter), and the lack of ventricular hypertrophy. The contraction of the ventricle was probably not powerful enough to produce it. Other signs were equally indefinite, and its recognition rested mainly on the absence of signs of fluid effusion into the pericardium, and on the occurrence of the “pulsus paradoxus.”

The last-mentioned fact—the *pulsus paradoxus* or *pulsus inspiratione intermittens*—constituted one of the most interesting clinical features of the case. This pulse, originally described and designated by Kussmaul, has not been a very frequent fact in my clinical experience, but the present case offered a very striking example of it. Kussmaul explained

it as being due to the presence of fibrous adhesions between the aorta on the one hand and the chest wall and lungs on the other—adhesions, such as occur in “formative mediastinopericarditis.” During expiration these bands of adhesion do not interfere with the lumen of the aorta, and thus the ventricle discharges the blood into the vessel, and through it into the other great arteries without impediment. During inspiration, however, traction is exercised on the adhesions, and the discharge of blood from the ventricle interfered with. The case under consideration is corroborative of Kussmaul's interpretation. It was interesting to note that the more deeply the patient inspired the more completely was the radial pulse modified. This theory, however, does not explain all cases of the *pulsus paradoxus*, as it has been observed in cases of pericarditis without such external adhesion, and in stenosis of the air passages.

The last point for comment is the treatment. Drug treatment failed to secure any substantial benefit. The explanation of this failure is to be sought in the facts revealed at the *post-mortem* examination. On the other hand, mechanical treatment was very effective. Many gallons of fluid were removed from the pleural sacs, and it cannot be doubted that it was this mechanical treatment which prolonged the patient's life. Without it he must have died many weeks sooner. The pleural effusion was in all likelihood due only in part to the rather limited tubercular pleurisy. Probably the greater portion of it must be ascribed to interference with the secreting and absorbing functions of the pleural membrane, due to disturbance of the circulation.

CLINICAL MEMORANDA,
BEING SELECTED CASES FROM THE WARDS OF

DR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY W. ERNEST THOMSON, M.D.)

XII.

23. *Case of Addison's Disease.*

Mrs. M. A., aged 37, was originally admitted to Ward VII. on 25th August, 1894, suffering from gradually increasing pigmentation of the skin, loss of flesh, and progressive weak-

ness of three years' duration, with intermittent faintness and vomiting extending over one year. She was dismissed at her own request, improved in general health, on 6th October, and readmitted on 9th November, 1894, at Dr. Anderson's request, for continuation of treatment.

The patient is married, and has three children in good health. Besides these three normal pregnancies, she has had one miscarriage between the first and second.

The present illness dates back to about the commencement of the last pregnancy three years ago, and began, or, at any rate, first came to her notice, as an increasing darkness of the skin of the face, neck, arms, and hands. She had previously had a "fair skin." Although former pregnancies had caused her little inconvenience, this one was marked by attacks of giddiness and morning sickness, with general malaise throughout. On previous occasions she had made good recoveries, and had soon been able to resume arduous household duties, but, after the birth of their youngest child, she did not recover as formerly. The vomiting, indeed, ceased, but a year ago returned, coming on nearly every morning, accompanied by faintness and excessive perspiration. Usually the faintness passed off during the morning, enabling her to go about the work of the house with intervals of rest. Throughout this time there was breathlessness on exertion and loss of appetite, and for three weeks before admission in August she was confined to bed with weakness, and such faintness that sitting up was almost impossible. Improvement in the general condition took place during the first stay in hospital, and she states that the colour of the skin lessened in intensity. Lately the old sensation of faintness has come upon her, and she came again into hospital.

Examination of the thoracic and abdominal organs yield negative results, except that the heart sounds are weak, with a correspondingly feeble pulse. There is no albumen in the urine, and the temperature is normal.

The pigmentation on the face, neck, hands, and arms resembles that produced by intense sunburn. It is uniform as regards the ground colour, but there are freckle-like spots of darker hue. Alteration of colour is only very slight in the lower extremities, except about the knees. Round the neck is a collar-like band of intense uniform pigmentation, which is demarcated rather suddenly from the parts below it, and more gradually shades off into the less intense colouration of the face. Another rather sharp line extends from the points of the shoulders across the suprascapular region, below which the

colour is not so great and not so uniform. In front, also, the pigmentation over the chest and abdomen is less uniform than on the face and neck, tending, indeed, to be patchy. The mammary areolæ are very dark, but the fold of the axilla is not markedly so. The extensor surfaces of the hands and arms, especially of the forearms, have a uniform sunburn tint, the flexor surface being much less affected.

There is a dark line at the junction of the mucous and cutaneous surfaces of the lips, and the cutaneous surface is itself involved, with dark spots at the angles of the mouth. Along the middle of the palate is a row of brown spots, and on the mucous membrane of the cheeks, along the lines of the teeth, there is pigmentation. Just within the row of eyelashes a fine dark line divides the intermarginal space into a pigmented and a non-pigmented portion. There is no alteration in the conjunctivæ.

Treatment consisted of light diet, with extract of malt and brandy, and a mixture containing cascara, nux vomica, and belladonna. Blisters were applied over the loins.

Progress of the Case.—During the patient's stay in hospital the pigmentation became distinctly less intense, and the vomiting was less frequent. She had, however, frequent attacks of syncope. She was dismissed at her own request on 19th December, 1894, and died at her own house very shortly afterwards.

24. *Case of Multiple Sclerosis dependent upon Syphilis.*

B. J., æt. 34, smith, was admitted into Ward II on 12th September, 1894, complaining of difficulty of articulation and of an affection of the extremities. He admitted having been a heavy drinker.

The present, which, with one exception to be mentioned later on, is the only illness which he has had, began six months before admission with a shaking of the legs whenever he had to hold a horse. Soon after this his speech became affected, and in such a manner that, though knowing quite well what he had to say, he could not "get out the right words."

On examination, it was found that the legs were paretic, and somewhat rigid, the knee jerks were exaggerated, and there was some degree of ankle clonus, as well as occasional spasms. He walked with the feet wide apart, and there was a tendency to come down heavily with the heels, the ataxy being fairly well pronounced. There were also tremors on exertion. Tactile and thermal sensations were normal; there were no bladder or bowel troubles, and the girdle sensation was not present.

As regards the arms, it was only when fine movements, such as using his knife and fork, were attempted, that any deficiency of power was observed, but tremor was marked when the muscles were called into play, and the deep reflexes were decidedly exaggerated. The dynamometer registered 40 kgms. with the right hand, and 33 with the left.

Speech was slow and hesitating—staccato—and there was tremor of the tongue. Nystagmus and vertigo were absent.

The lesions were supposed to be syphilitic for the following reasons :—

1. Fifteen years ago he had a chancre on the penis, the scar of which is distinct.

2. He is very pallid, and there is a scar of a bubo in the right groin.

3. On the left shinbone there is a fulness suggestive of a bygone attack of periostitis.

4. He was married twelve years ago, and had one child born prematurely, and which did not survive.

On 13th September he was put upon a mixture of iodide of potassium, nux vomica, and arsenic; and on 21st September, and onwards until he was dismissed, daily mercurial inunction, to the extent of a drachm, was added.

On the 14th November, shortly before he was dismissed, great improvement was noted. The arms were stronger, and their tremor had all but disappeared. The eyes were also much stronger, with less stiffness and tremor, and the ankle clonus was nearly gone. He walked well, but there was slight unsteadiness on turning sharply round. Speech was nearly natural, and he denied that it was in any way defective.

25. *Syphilitic Disease of the Spinal Cord.*

J. M., aged 29, was admitted into Ward II on 24th September, 1894, complaining of loss of power in the legs with diminished sensation, retention of urine, and constipation of twelve days' duration.

The only point in the past history of this man and his family is, that he himself had a discharge from the urethra seven or eight years ago.

The present illness dates back seven weeks, when there was severe pain between the shoulder blades. This was treated locally, and some weeks afterwards numbness came on in the feet and legs and the lower part of the abdomen, followed by weakness in the legs and trouble with the bladder, from which the urine constantly dribbled. During this time the pain between the shoulders continued, accompanied by a

feeling of tightness round the waist, and progressive enfeeblement of the legs, with shooting pains, until he completely lost power in them five days ago.

There is complete paralysis of the lower extremities, the limbs being perfectly limp. The knee and ankle reflexes are absent. There are both anæsthesia and analgesia of the abdomen and legs. The bladder is distended half-way up to the umbilicus, and the urine constantly dribbles away. There are three large painless nodes on the head, but no cicatrices are to be found either on the lips, penis, or elsewhere.

Twenty-four ounces of urine were drawn off by the catheter, the diet regulated, the bowels relieved by enema, and mercurial inunction commenced. The urine was afterwards withdrawn daily, and the bowels attended to by enema.

Improvement soon set in, with diminution of the pain in the back, and after about four weeks the great toe could be moved, power gradually returned to the legs, and a slight degree of expulsive power over the bladder. An untoward accident took place on 19th October, in the shape of extravasation of urine into the perineum and scrotum. The patient was very ill at this time, and a bed-sore, which had been threatening, developed. The perineum was incised. By the 25th he was much better again. Some power over the legs had returned, the anæsthesia was less marked, and the pains had become less severe.

He was transferred on 14th November to Dr. Buchanan's Ward for treatment of the perineal fistula. The general condition continued to improve slowly. He received no mercurial treatment in Ward III. On 27th November he could pull his legs up in bed, and lay them down again, although the latter act had only recently been possible. He was able, also, to move the feet. Control over the bladder was very slight. The gridle sensation had disappeared, the bed-sore and the fistula were almost healed, and the general health had improved.

On examining the legs it was now found that rigidity was present, the feet being crossed, but they could be uncrossed voluntarily. The knee and ankle reflexes were now much exaggerated, and a very slight stimulation of the skin produced contraction of the hamstring muscles. There was also marked tremor on exertion. There was still impairment of sensation, but chiefly below the knee. A prick with a pin was at once recognised on the inside of the thigh, but firm pressure was required to produce pain over the inside of the calf. Some occasional spasm was complained of. From this time the

condition of the bladder and bowels improved, till eventually control became established. Power over the legs also somewhat increased, but synchronously with this improvement rigidity, tremor, and spasm became more marked—the spasm of the left leg being so great that it was impossible for the patient to put it down flat in the bed. The slightest touch on the toes was sufficient to excite clonic contractions. The nodes on the head did not diminish in size. He was dismissed at his own request on 27th December.

27. *Amyotrophic Lateral Sclerosis.*

J. L., aged 15, a grocer's salesman, was admitted into Ward II on 2nd November, 1894, complaining of weakness of the hands, legs, and back of over four months' duration.

The family and previous personal history are unimportant.

His present illness appears to date from the Queen's birthday of this year, for on that day, when out in a boat, and exposed to a hot sun, he fell down, and, though conscious, was unable to rise. When the boat reached the shore, about ten minutes later, he was assisted to rise by his companions, and was able to walk with some difficulty. As far as can be ascertained—the patient is not reliable in his answers to questions—there was no vomiting, and he remained conscious throughout.

Some weeks later he began to feel pain in the lower part of the back, and weakness above the shoulder blades. His work was arduous at this period, and loads had frequently to be carried on the head. Weakness in the legs, with some tremor and stiffness on exertion, was followed by inability to carry parcels, which he would drop on the street now and again. Occasionally, after stooping, he had great difficulty in assuming the erect posture without assistance. Attacks of vertigo appeared, which lasted sometimes for an hour, and (he states that) a haziness of vision now first appeared; and also, about this period of his illness, he first noticed a change in the appearance of the hands and arms.

The sequence of events was very difficult to get at correctly, a leading question being seized upon with avidity and answered in the way he thought would oblige the questioner. The approximate order now given is the result of repeated cross-questioning:—

1. Weakness of the muscles of the back.
2. Paresis of the lower extremities with tremor, and some rigidity on exertion, and occasional spasm.
3. Paresis of the upper extremities.

4. Paralysis, wasting, and tremor of the hands and forearms.

5. Paresis and wasting of the shoulder muscles, deltoid, pectoral, and scapular muscles.

In giving the state on admission it will be well to commence with the lower extremities.

The legs are thin, but the patient denies that they are more so than they used to be. Walking is not much impaired, objectively, perhaps not at all, although there is some tremor



and rigidity, as noted above. The patellar reflex is greatly exaggerated on both sides, and ankle clonus is readily obtained on the left side, less so on the right.

The trunk is thinly clad with flesh, the shoulders droop, and there is wasting in the pectoral, deltoid, and scapular regions.

The upper arm is thin, but it would not be easy to say that the biceps is actually wasted. The greatest objective change is in the hands and forearms, the former having a claw-like appearance (see accompanying figure), and exhibit distinct

tremor when held out. The thenar and hypothenar eminences are much flattened, the thickness of the palm is diminished by wasting of the interossei muscles; the tendons, both flexor and extensor, are prominent. Deficiency of muscle padding between the thumb and index finger is especially noticeable.

The first phalanges, with the exception of the index, are over-extended; the second and third are bent towards the palm, especially those of the index. None of the fingers are actually pressed into the palm. The flexor and extensor surfaces of the forearm are flattened, the dynamometer cannot be grasped, so that what power there is cannot be registered. The finger, wrist, and forearm tendon reflexes are all quite obviously exaggerated. With the exception of some stiffness of the fingers, there is no rigidity of the upper extremity, nor has there been any spasm. Reaction of degeneration is present in the upper extremity only.

Regarding cutaneous sensibility and superficial reflexes, there is a degree of numbness of the hands complained of, but this is the only instance of subjective alteration. The surface reflexes are diminished, tickling the sole produces no contraction, nor can the cremasteric or abdominal reflexes be obtained.

There is some paresis of the internal rectus of the right eye, which, if recent, may account for the haziness of vision complained of.

Lastly, must be mentioned some negative points. The tongue is not tremulous, nor is there any alteration of speech. Answers to questions come out clear and sharp, albeit often untrue. There is no alteration in the appearance of the ocular fundus, nor is there the slightest nystagmus. None of the symptoms of bulbar paralysis are present.

Treatment consisted in the daily application of the continuous current to the spine. The patient was dismissed practically *in statu quo* on 28th December, 1894.

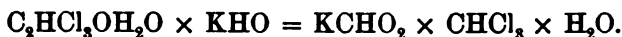
A CHEMICAL ANTIDOTE FOR CHLORAL POISONING.

By JOHN DOUGALL, M.D., F.F.P.S.G.,

Professor of Materia Medica, St. Mungo's College; Physician and Lecturer on Clinical Medicine, Glasgow Royal Infirmary.

It was recorded long ago that if an alcoholic solution of caustic potash be added to an aqueous solution of chloral

hydrate, the latter is at once decomposed into chloroform and formate of potassium; thus—



It is also stated in some books of organic chemistry and of materia medica that alkalies, including ammonia, decompose an aqueous solution of chloral at 60° F., liberating chloroform, while some aver that carbonates and bicarbonates of potash and of soda, also borax, have the same effect, but take longer, and need a higher temperature to act.

When chloral was first used, its hypnotic action was thought to be solely due to the generation of chloroform from it by the alkalies of the blood; its effects on the body generally were, and indeed still are, held as almost identical to those produced by chloroform.¹ The above view, however, has been disputed on the grounds that the quantity of chloroform which a full dose of chloral is capable of producing is quite inadequate to cause the hypnotism and anæsthesia observed; also, that the greater part of the chloral is exhaled from the lungs unchanged, and that small quantities of it may be found in the urine, but no chloroform. Whatever facts or theories, however, there may be regarding the *modus operandi* of the hypnotic and anæsthetic action of chloral, there can be no doubt about its chemical composition and affinities, and, in particular, that it is almost at once decomposed, at and above 60° F. outside the body, by an alcoholic solution of KHO, into formate of potassium and chloroform, and, as I have proved by trial, somewhat less quickly by an aqueous solution of KHO.

Now, assuming that a person has swallowed a poisonous dose of chloral—say 80 grains, as was done inadvertently by the late lamented Professor Tyndall—and that there could with safety be given, as a chemical antidote, 27 grains of KHO, this amount being the quantity by weight in the formula required to decompose 80 grains of chloral—in such a case I think there are strong *à priori* grounds for assuming that in about fifteen minutes the chloral in his system would be entirely changed into formate of potassium and chloroform, or, at least, that as much of it would be decomposed that the residue would be harmless. But would not the KHO, or the amount of its formate, or of the chloroform thus produced, be as lethal as the chloral? Undoubtedly 27 grains of KHO swallowed at once, even much diluted, would cause serious

¹ Sir B. W. Richardson in *Trans. Brit. Assoc. for the Advancement of Science*, 1871.

symptoms. But if even half that quantity were given in divided doses—say 7 grains every hour—in warm milk, gruel, or barley water, by this means it seems to me very probable that no serious irritation of the gastro-intestinal tract would result, and that in a short time so much of the chloral would be decomposed as to render the residue at least non-lethal.

The liquor potassæ of the *British Pharmacopœia* contains about 1 grain of KHO in 16 minims, and the maximum dose stated is 60 minims. Hence, to give 7 grains of KHO is equal to giving 112 minims of liquor potassæ. I think it may be assumed that this quantity, highly diluted as stated, might be given without fear of causing untoward symptoms. By this means 20 grains of the chloral would be soon decomposed, thereby *pro tanto* neutralising its lethal power. Always assuming, of course, that the KHO is given before the patient is too far gone to afford relief by this means, then, say in an hour after, other 112 minims of the KHO are given in the same way, this would reduce the chloral in the system to 40 grains (the maximum dose in the *British Pharmacopœia* is 30 grains)—a quantity quite within the bounds of safety for an adult, providing there is no heart trouble.

I have proved by experiment what has been stated by others—viz., that the carbonates and bicarbonates of potash and soda also decompose chloral; but their action, particularly of the bicarbonates, is very slow, besides a greatly larger quantity than of the KHO, and a heat much above that of the body is required.

Regarding the action of formate of potash, it merely causes, like all other potassium salts taken in excess, a peculiar eruption of the skin, which soon disappears when the drug is stopped. This eruption is well known to habitual chloral takers, and seems to prove that chloral is decomposed in the blood as stated.

As regards the probable effects of the chloroform which would be generated by the decomposition of 40 grains of chloral, I find that quantity of chloral to require 13·5 grains of KHO for its decomposition, resulting in the production of 28·5 grains of chloroform, equal to 21·5 minims.

Judging from the much larger amounts—4 oz., 2 oz., $\frac{1}{2}$ oz., &c.—of liquid chloroform recorded to have been swallowed and followed by recovery, and as it is likely that the greater part of that generated in the blood by the decomposition of the chloral is exhaled as fast as produced, I think nothing serious need be feared on this point.

AN UNUSUAL CASE OF LITHOTOMY.

By WM. HUNTLY, M.B., B.Sc., KOTAE.

THE case happened in Jodhpore hospital. The number of stones, their size, the operation chosen, and the comparison of the measurements of the largest of the stones with those of the case published by Professor Buchanan in the *Glasgow Medical Journal*, November, 1894, make it noteworthy.

The patient came to hospital with a history of four years or more of urinary troubles treated by various native practitioners as arising from venereal disease, most probably gonorrhœa. His health was broken down and he presented the symptoms of chronic cystitis. Age about 30. On passing the catheter, the under surface of the instrument was felt gliding over a large stone, and in a furrow which suggested a second stone lying at the side of the first; further along, the point of the catheter met and pushed before it another calculus. I was sure then that I had to deal with multiple calculi, in number not less than three. The finger put into the rectum felt a rounded tumour of the size of an egg bulging into the bowel.

On the following morning the patient was put on the operating table. Brigade Surgeon-Major Ffrench Mullens came along to assist. With the sound he was only certain of one stone; yet he preferred the lateral perineal to the supra-pubic operation. I had guessed the stone or stones at 6 or 7 ounces, and on the supposition of a single stone felt inclined to perform the supra-pubic operation. Convinced that we were dealing with multiple impacted calculi, I operated from the perineal side.

Putting my forefinger in the bladder, I found a large stone blocking the outlet, and some smaller ones massed round it. The large stone was pushed back, and to our surprise nine calculi of fair size, one of which weighed a full ounce, were brought away. With a little care the largest calculus was extracted, making thus ten in all.

The man made an uninterrupted recovery, the temperature never rising to 100° F., and left hospital within four weeks.

The total weight of the ten stones was over half a pound. The nine stones were facettèd after the manner of multiple biliary calculi. I have seen as many as seventeen small stones resembling large peas in one case, but so many stones of such size and weight constitute, I think, a unique collection. Eight of the stones weighed a little under 4 oz., averaging

half an ounce each. The ninth stone weighed 1 oz. The tenth stone weighed over 3 oz.; its measurements were—length $2\frac{1}{4}$ inches, breadth 2 inches, thickness $1\frac{1}{2}$ inch.

The stone was thus shorter in length than in the case noted by Professor Buchanan, but a glance at its width and thickness will show that the perineal wound in the bladder requisite for its extraction must, when we add the room required for the forceps, have been as large, if not larger.

Among a series of eighty cases of lithotomy, with a mortality of one death in a child, the above is the most remarkable. I have also extracted by lithotrity a large hard calculus weighing 3 oz., and doubtless, in the case of a single stone, if the stone could be grasped and split by the lithotrite, I should not hesitate even in the case of larger stones to crush. In the present case the successful termination of the case showed what can be done by lateral lithotomy.

ON A CASE IN WHICH HALF OF A VULCANITE DENTAL PLATE IMPACTED IN THE ŒSOPHAGUS WAS REMOVED BY A COIN-CATCHER.¹

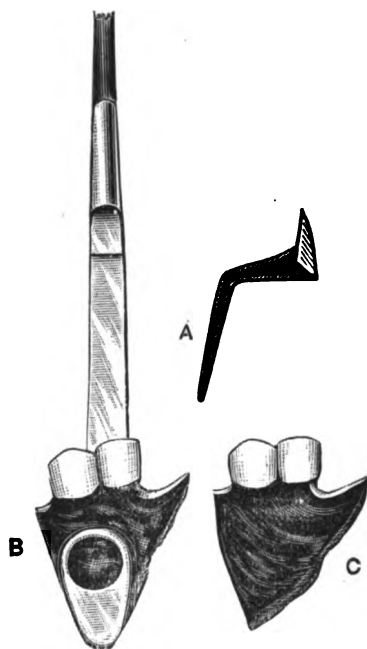
By JOHN COULSON HOWIE, M.A., M.B., C.M., L.M.,
Late Clinical Assistant, Golden Square Throat Hospital, London; Dispensary
Physician, Glasgow Samaritan Hospital for Women.

ABOUT half-past eight o'clock on the morning of Tuesday, 27th November, 1894, I was called to see Mrs. W. H., in Pollokshields, who was suffering severe pain caused by half of a vulcanite dental plate which she had swallowed during sleep at one o'clock that morning. Some time previously the plate had become broken, and so had ceased to accurately fit the jaw. The patient, however, had delayed having it renewed, and, as a consequence, the right half of the plate, measuring one inch long by seven-eighths of an inch broad, to which the upper right central and lateral incisor teeth were attached, was swallowed by the patient. Before my arrival she had taken a quantity of bread crumbs in order, if possible, to form a bolus round the plate and protect the gullet from being injured by the sharp angles attached to it.

¹ Read at a meeting of the Southern Medical Society, 13th December, 1894.

On my visiting the patient she was at once able to localise the position of the plate, feeling distinctly the sharp points projecting across the gullet about the level of the body of the eighth dorsal vertebra on the left side of the spine. She complained of great pain at that spot, which she described as of a distinctly "jagging" character, and said that occasionally a "twisting" movement was felt in the gullet.

I determined to attempt to remove the plate by the mouth, if possible, by a coin-catcher. Accordingly, I seated the



patient on a chair, with the spine erect and the head thrown well backwards, while I asked her husband to steady the head in that position with both hands. After making the whalebone of the instrument flexible by immersion in hot water, I passed the forefinger of the left hand over the epiglottis into the pharynx, and with the right hand I directed the metallic part of the coin-catcher along the left forefinger, first into the pharynx and then into the œsophagus. The instrument was passed down very gently and slowly until it had passed twenty-one inches from the teeth and only about one inch was left outside the mouth to grasp it by.

Thinking that the end of the instrument had now passed quite beyond the plate, I proceeded cautiously to draw it upwards—grasping it between the right forefinger and thumb—until a slight resistance was felt as the catcher hitched against the lower edge of the plate. When I felt that the plate was caught, I gently drew it upwards at short intervals—always stopping the process when the patient began to retch, until the nausea passed off, in order to prevent any injury to the gullet by violent straining. When the plate reached the pharynx, I rapidly whipped it over the epiglottis and out of the mouth. In the accompanying woodcuts, B shows the position of the dental plate as it was caught by the instrument, when observed on being withdrawn from the mouth. The concave, roughened palatal surface of the dental plate rests in the angle between the anterior hook of the catcher and its thin metallic stem. The two teeth project vertically upwards, and the sharpest angle of the plate projects to the left of the figure. The whalebone stem of the catcher is represented as broken off a little beyond its junction with the metallic end. Fig. A gives a vertical section of the plate through one of the teeth, showing the wide curvature of the plate. In C, the palatal surface of the plate is shown outside the catcher in order to exhibit the angle at the opposite side of the plate from the teeth. The figures are all natural size. There was very little bread crumb, and only a streak of blood, alongside the plate when brought up. The plate had been in the gullet for fully 9 hours. I have seen the patient several times since the accident, and she has been none the worse of the misadventure, except that for a few hours she had a little soreness over the seat of impaction of the plate at the lower end of the gullet. This was entirely relieved after taking some infusion of linseed as a demulcent on the day of the accident.

Note.—In this case it was very fortunate that the plate was caught in the position indicated above. Had it been laid hold of either by the side opposite C or that opposite B, there would have been great danger of severe laceration of the gullet by the two sharp angles at the apex and at the left side of the base—the plate lying transversely across the gullet between these angles; or, if it had been grasped by the teeth, then the angle at the apex would have projected obliquely upwards and outwards, and might have done much damage. The operation was also helped by the patient avoiding excitement, and keeping absolutely steady the whole time—and having very little retching.

Remarks on Foreign Bodies in the Pharynx and Œsophagus.—Fish bones and pins are liable to be caught in the pillars of the fauces, or in the tonsils, or may be fixed transversely across the pharynx. They cause much pain in swallowing. In these cases it is best, if possible, to try to search for the foreign body by the laryngoscope, and then to grasp it by suitable forceps or by the finger nail, while the pharynx is illuminated. This is a safer method than the plan of feeling for it with the finger without a light—and risking its passing down into the larynx. The tongue must be well pulled forwards with a sponge cloth, and the patient induced to continue breathing regularly, after first drawing a long breath. If the object is beyond the reach of a curved forceps or of the finger, it may be removed by the expanding horse-hair extractor, or by a coin-catcher. If these methods still fail, first without chloroform and afterwards with its use, then it is necessary to perform pharyngotomy.

In the case of coins and flattened objects which may be presumed to be lying vertically in the gullet with their broad surfaces looking anteriorly and posteriorly, it is well to try to remove them by a coin-catcher. This instrument (see fig. B) consists of two flattened rings joined together by a metal plate at their lower extremities, and hinged on to the end of a narrow steel band in such a manner that, when it is passed beyond the foreign body, either side of the coin-catcher is capable of hitching against any object lying on the lateral walls of the gullet. The metallic part of the instrument is firmly fixed to the end of a long flexible piece of whalebone (22 inches in length), at the other extremity of which a sponge probang is fixed. The method of using it has been referred to already.

Even from the stomach, Dr. Little has removed, by a coin-catcher, a hooked dental plate with five teeth attached. If the body cannot be removed from the stomach, it may be allowed to pass through the intestines, provided that it does not cause too much disturbance in the stomach. But the risks of this method are very great if the foreign body has sharp points or angles, as it is liable to perforate the bowel and cause an abscess before it traverses the 26 feet of intestine between the stomach and the rectum; or it might fall into the vermiform appendix, and there set up appendicitis, &c. Pins, fish bones, and cherry-stones, are specially prone to lodge in the appendix. If the foreign body is permitted to traverse the bowels, the patient should be kept absolutely at rest in bed, and ordered to take as much semi-solid food as possible—such as bread and milk, thick porridge, thick

arrowroot or corn-flour—so as to form a bolus around the object, and, by covering over the points, avoid injury to the bowel. Erichsen by this method was able to get rid of a gold tooth-plate to which were attached three molar teeth and a sharp clasp at each end, without injury to the patient, after it had been in the abdomen for four days.

If the body cannot be made to pass either up or down from the stomach, then the operation of gastrostomy must be performed. Durham had only one death out of ten cases in which he performed this operation.

CURRENT TOPICS.

THE ELECTRICAL INSTALLATION AT THE ROYAL INFIRMARY.—The installation which has been some months in preparation, and which has been most generously gifted through Dr. John Macintyre to the Infirmary by an unknown donor, is almost ready to be formally handed over by the electrical engineers. The electrical equipment of the Infirmary will now be most complete, abundant electricity both for light and for cautery, as well as for ordinary faradization, being always obtainable. The electrical room contains all the most modern forms of apparatus, and so cannot fail to be a most useful adjunct to the diagnostic and therapeutical armamentarium of the Hospital. The pathological department has been furnished with electrical microscope-lamps, and with a powerful electric magic lantern, by Newton of London, which will certainly be of the greatest service for demonstrating pathological phenomena to the students of the Infirmary.

WESTERN INFIRMARY APPOINTMENTS.—At a recent meeting of the Directors the following gentlemen were elected full Dispensary Physicians—viz., Dr. R. M. Buchanan, Dr. A. W. Russell, and Dr. Barclay Ness. Drs. Jack, Wm. M'Lennan, and H. E. Jones were at the same meeting appointed Extra Dispensary Physicians.

GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION (“GLASGOW MEDICAL JOURNAL”).—The annual meeting of this Association was held in the Faculty Hall, 242 St. Vincent Street, Glasgow, on Monday, 28th January, 1895, at 5 o'clock.

In the absence of the President, Dr. Donald Macphail, who telegraphed his inability to be present, Mr. Henry Rutherford, one of the Vice-Presidents, occupied the chair. Dr. T. K. Monro submitted the Treasurer's report, which showed a good balance in favour of the Association. The Editors' report, submitted by Dr. Joseph Coats, referred chiefly to the successful establishment of the department of Public Health in the *Journal*, and stated that the supply of literary material during the year had been abundant. A considerable addition to the membership of the Association had been effected during the year, chiefly through the energy of Dr. T. K. Monro, the Treasurer of the Association. The following Office-bearers were elected for 1895:—

<i>President</i> ,	DR. J. CRAWFORD RENTON.
<i>Vice-Presidents</i> ,	{ MR. HENRY RUTHERFURD. DR. ALEXANDER ROBERTSON.
<i>Editors</i> ,	{ DR. JOSEPH COATS. DR. JOHN LINDSAY STEVEN.
<i>Sub-Editor</i> ,	DR. JOHN H. CARSLAW.
<i>Treasurer</i> ,	{ DR. T. K. MONRO, 10 Clairmont Gardens.
<i>Secretary</i> ,	{ DR. JOHN LINDSAY STEVEN, 34 Berkeley Terrace.

General Business Committee.

DR. J. A. WILSON (Springburn).	DR. R. M. BUCHANAN.
DR. ALEX. MILLER (Crosshill).	DR. M'LACHLAN (Dumbarton).
DR. GEORGE MARSHALL.	DR. JOHN GLAISTEL.
DR. J. N. MARSHALL (Rothesay).	DR. C. O. HAWTHORNE.

NEW PREPARATIONS, INSTRUMENTS, &c.—*The Pasteur Germ Filter.*—We have great pleasure in directing the attention of our readers to this filter, of which the sole licensees and makers are Messrs. J. Defries & Sons, Limited, 147 Houndsditch, London, E.C. From what we have been able to learn of this apparatus, we are of opinion that it is one of the most effective means now on the market of separating disease germs from water. Designed by Pasteur, it is much better known in France than in this country, and by the name of the Pasteur-Chamberland filter we made its acquaintance first of all in the Pasteur Institute at Paris, where it was regarded as an almost certain means of separating germs from water and rendering fluids sterile. Since its first introduction its value has been spoken to by many competent observers, amongst whom we may mention the names of Sir Henry Roscoe, Dr. Sims Woodhead, Dr. Cartwright Wood, and others.

It has been adopted by various Government departments in France, and by the French army its use has been extended to Algeria, Tunis, Indo-China, and Dahomey. For a valuable scientific account of the filter, we would refer our readers to the article by Woodhead and Wood in the *British Medical Journal* for 29th December, 1894, page 1487, which concludes with the following significant sentence: "We are accordingly of opinion that this filter does prevent the communication of water-borne disease, as is claimed by the vendors."

The Bandage Shoot.—We have pleasure in recommending to the favourable notice of our readers this exceedingly handy and clean case for storing bandages, devised and made by Messrs. Reynolds & Branson, 13 Briggate, Leeds. For particulars, we refer the reader to our advertising columns, and would only add that "the Bandage Shoot" will be of the greatest service in the surgery of the practitioner or the out-patient room of a general hospital.

REVIEWS.

Dr. William Smellie and his Contemporaries: A Contribution to the History of Midwifery in the Eighteenth Century. By JOHN GLAISTER, M.D. Glasgow: James Maclehose & Sons. 1894.

MEMBERS of the profession who take an interest in the history of medicine, and more especially in that of the obstetric branch of the art, will feel themselves under a debt of gratitude to Dr. Glaister for the great patience and labour he has bestowed upon the preparation of his biography of Dr. William Smellie. The biographer informs us in his preface that the work is the fruit of researches occupying the leisure hours of twenty years of a busy professional life; and when we go through the different chapters of the book, and make ourselves acquainted with the enormous mass of authority which has been laid under contribution, we have little difficulty in believing this. When we consider that Smellie and Glaister are fellow-townsmen, though their lives are separated by the span of a century, we have some explanation of that affection and reverence which have prompted the performance of this labour of love. That Smellie was a great master of the obstetric art every one will admit, and

that his contributions to the science of Midwifery were substantial and permanent no one, we imagine, will be inclined to deny. That he was a keen and accurate observer of natural phenomena his record of cases shows; and that he was a successful and popular teacher of midwifery crowds of admiring students testified. These were great and outstanding qualities which well justify his claim to a niche in the temple of fame. But Smellie's life was not such as to make its influence felt outside of the bounds of the profession in which he lived and laboured. Of very general interest, so far as we have been able to read, the story of his life possesses little. Entirely bound up in professional work and teaching, he seems to have had little time to bestow upon anything else. Although he painted his own portrait, there is no evidence that he cultivated and patronised the fine arts like his more famous compatriot and "quondam pupil," William Hunter; and although he left a library to Lanark, it seems to have been almost entirely a professional one, and not one appealing to the collector, like that contained in the Hunterian Museum on Gilmorehill. He lived in London in stirring times, but there is no indication that he took any interest in public affairs, and we are afraid that we cannot judge much of Smellie's political sympathies from his record of the case of a mother who received a maternal impression on the day of Lord Lovat's execution. Smellie was entirely given over to his professional work. He did that work well, and made a name for himself which will last while the obstetric art lasts; but it was this very devotion that rendered the story of his life of little interest to his contemporaries and successors outside the ranks of his own profession.

From what we have stated above, it follows that, after the lapse of 130 years, the materials for constructing a biography of a man like Dr. William Smellie are bound to be scanty. But such as they are, they have been made the most of; and we think that everything that can now be known of this great past-master in obstetrics is included within the boards of Dr. Glaister's biography. Dr. Glaister has succeeded in throwing fresh light upon a number of points in the career of Smellie, and, with the help of Mr. Innes Addison, Assistant Clerk of Senate, he has placed it beyond all doubt that Smellie obtained his M.D. from the University of Glasgow on the 18th February, 1745. He had previously been admitted a member of the Faculty of Physicians and Surgeons of Glasgow, on 5th May, 1733. Smellie was born in the town of Lanark in the year 1697. His father was Archibald Smellie,

and his mother Sara Kennedy, of the Kennedys of Auchtyfardle, near Lesmahagow. William entered the medical profession by the system of apprenticeship, but where or under whom he served his probation cannot now be determined. Dr. Glaister thinks that he may have served as a pupil under Dr. John Gordon, of Glasgow. He settled in practice in Lanark in the year 1720, and early directed his attention to obstetric work. At the age of 27, in the year 1724, he married Eupham Borland, who survived her husband, and died at Lanark on 27th June, 1769. They had no children. In 1738 or 1739 Smellie left Lanark, being succeeded in practice there, it is believed, by Hew Cochrane, a member of Faculty of Physicians and Surgeons. After a short stay in Paris, where he studied under Grégoire, he settled in London, and began his career as a midwifery practitioner and teacher of obstetrics. By the year 1748 he was famous, and the testimony of his success was the acrimony of the critics. In 1759 he gave up practice in London, and returned to Lanark, where he settled in retirement upon a small estate which he had purchased, and which in his time was called Smellom, but is now known as Smyllum. He spent his leisure in preparing his second and third volumes for the press, and on the 5th March, 1763, he died "of an asthma and lethargy." He was buried in the old churchyard of Lanark, where his tombstone may still be seen. Of his friends, probably the most celebrated were Dr. William Hunter and Tobias Smollett, the latter of whom assisted him with the literary portion of his work. Smellie's chief title to fame rests upon his celebrated *Treatise on Midwifery*, and on his anatomical plates illustrating his theory and practice, both of which are now placed amongst the classics of midwifery. It was no small thing for a country practitioner of nearly twenty years' standing to have left his native town, and, without friends or influence, to have attained the position he did as a teacher in the city of London. But Smellie was a typical Scotsman—hard-headed, observant, and original, of great endurance, and unassumed modesty.

Dr. Glaister's volume is of importance, not merely as the most exhaustive biography we have of Smellie, but also as a valuable contribution to the history of midwifery in the eighteenth century. Indeed, we would be inclined to suggest that in it we have abundant material for two books rather than for one only. We almost think that, as a literary production, the present biography would have been better had the elaborate account of midwifery in general been

relegated to a second volume, as the central figure of Smellie is apt at times to be obscured by the presence of collateral matter having no very direct bearing upon his personal life and work. However, the labour has been so great, and the research into old treatises so exhaustive, that we quite appreciate the difficulty the author must have had in keeping any of his material out. His researches into this very interesting field will be of immense service to future generations of students, and we heartily wish Dr. Glaister's book every success.

La Pratique Journalière de la Médecine dans les Hôpitaux de Paris ("The Practice of Medicine from Day to Day in the Hospitals of Paris"), par le PROF. PAUL LEFERT. Paris: Librairie J. B. Baillière et Fils. 1895.

THIS little book is one of a series of twelve compiled by the same editor, the object of which is to place in a compact form specimens of treatment as actually carried out in the Paris hospitals. The other members of the series deal with special classes of disease—*e.g.*, Diseases of Nervous System, of Digestive Tract, of Nose, of Eyes, &c., &c. The volume under consideration is devoted to the treatment of microbic and parasitic diseases, intoxicational and constitutional affections. The plan of the book is very simple, consisting in taking the various diseases in alphabetical order, and under each heading giving a short note of anything interesting in the treatment of it by various doctors. There is a double index at the end. The first gives the names of the doctors quoted and the names of the maladies about which their treatment is given; the second index gives the name of the malady, and below it the name of the doctor. The book is not intended to be a manual of therapeutics for ordinary use, because, in many cases, the ordinary methods of treatment are entirely omitted, and only some novelty is mentioned. No cases are given, and we are not even told whether the results of the treatment were satisfactory. We suppose that is left to be inferred. It is as if notes had been made of the clinical remarks of the visiting physicians of the hospitals and then collected together. To one who has had the opportunity of attending clinical instruction in the wards of the Paris hospitals, a great point of interest in the book lies in recalling these visits and the individuality of the teachers; others will be chiefly interested in the variety of treatment suggested. The reader is thus

enabled to follow out the methods of treatment suggested in a consultation which includes a large number of physicians.

A large number of opinions is given on the subject of typhoid fever, and from these we gather that the treatment by baths, as recommended by Brand and others, is received with great favour. The details of this treatment vary in different hands, also the indications, the more enthusiastic recommending that cold baths should be ordered systematically in every case of typhoid fever (Juhel-Renoy) in order to prevent what appear to be slight cases developing into serious ones, while others wait till the temperature is over 100° F., while still others wait till it is up to 104° F. The temperature of the bath recommended varies in a similar fashion, 60° F. being ordered by one, while another thinks it should be started at a temperature of about 100° F. and gradually reduced as indicated by the temperature of the patient. The number of baths recommended varies from six to eight in twenty-four hours or even every two hours, and the duration from five to ten minutes or more. When baths cannot be managed sponging with cold water and aromatic vinegar four to eight times a day is recommended as a substitute. The contra-indications for the baths vary in the same way, one thinking that hepatisation of the lungs forbids the bath, but another that neither pulmonary nor renal complications are to be regarded as contra-indications. They are agreed in considering intestinal hæmorrhage as a strong contra-indication, but one makes a distinction even here between hæmorrhage during the first five or six days, which permits the administration of a cold bath, while hæmorrhage occurring later on distinctly forbids their use. The occurrence of menstruation is not a contra-indication.

The internal treatment is aimed at procuring antiseptis of the intestine. Such drugs as naphthol α with bismuth, naphthol β alone or with bismuth or salicylate of magnesia, betol, salol, benzonaphthol, occupy a prominent place in the prescriptions, while quinine and Peruvian bark are also recommended, and caffeine, especially in adynamic forms. Enemata, with antiseptics, are recommended for the purpose of cleansing the lower part of the intestine. To aid in removing still more thoroughly septic matters from the system, the patient is to be made to drink large quantities, even up to 6 or 7 litres (10 to 12 pints) of liquid a day, in order to promote profuse diuresis. The amount of milk recommended is about three pints after the fourth day, and soup, and wine and water are permitted in addition; in

some cases pure water and feeble mineral waters are also mentioned.

Complications must be treated as they arise, and precautions taken to prevent the spread of infection.

Under the heading of malaria and intermittent fever we have exact instructions as to the best method of administering quinine in order to prevent the regular recurrence of the fever. From this we learn that a large dose may not be divided into small parts and spread over a long period of time, but must be taken as quickly as possible. Thus, 15 grains should be taken in three parts at intervals of only a quarter of an hour. The time when the dose should be administered varies according to the nature of the attack. In quotidian ague it should be eight hours before the expected attack, in tertian ague twelve hours before the attack, and in quartan ague fifteen to eighteen hours before the attack. A table of the dose of quinine suitable for a child according to its age is also given.

When treating of antiseptics, a list is given showing the order of power of each as evidenced by its capability in preventing putrefaction. A large number of substances is named, among which we find sublimate in the first class, iodine and sulphate of copper in the second, carbolic and potassium permanganate low down in the third, boric acid in the fourth, borate of soda in the fifth, and hyposulphite of soda last. When considering their power to prevent the development of pathogenic microbes, we find the order of merit much altered. Thus, with cultivations of tubercle bacilli, salicylate of soda completely sterilises it, while salicylic acid allows the colonies to develop in a remarkable fashion. In presence of essence of eucalyptus the cultures are evident, but not so prosperous, while creosote, iodoform, toluene, &c., are effective in retarding their growth. It is satisfactory to learn that the cholera bacillus has a very low vitality, a temperature of 130° F., or a weak solution of a mineral acid being sufficient to prevent the growth of cultures. As regards the internal administration of antiseptics, we are reminded of the danger of administering toxic agents, the therapeutic value of the agent being altered in proportion to its toxicity.

In connection with the treatment of rheumatism, a list of natural mineral waters is given, with a note as to the nature of the water, and the class of cases for which each is suitable. The baths named seem to be all in France.

For diabetes antipyrine is recommended with a certain

amount of confidence in doses of 45 grains in the twenty-four hours, contra-indications being loss of appetite, emaciation, weakness, pallor, oppression, puffiness of the eyelids—these indicating that antipyrine is doing more harm than good. Phthisis is also a contra-indication.

The above notes will convey a general idea of the scope and utility of the book. Those who are interested in *materia medica* will find a number of preparations, especially from the vegetable kingdom, entering into the prescriptions, which do not find an official place in the *British Pharmacopœia*.

In conclusion, let us point out a very serious omission. Under the title of *myxœdema*, no reference is made to the treatment by means of the thyroid gland. If this mode of treatment has not yet found a place in the Paris hospitals, the sooner it does the better it will be for the *myxœdematous* patients, if they have any such.

On Chorea and Choreiform Affections. By WILLIAM OSLER, M.D. London: H. K. Lewis. 1894.

THE book is chiefly devoted to chorea minor (Sydenham's chorea), but with brief chapters on the pseudo-choreas or habit spasms, and on the form of chronic progressive chorea known as Huntington's chorea.

The chapters on the general etiology and symptomatology of chorea minor represent, as the preface tells us, in expanded form, the author's lectures published in the *Medical News* in 1887, and are, for the most part, based on studies made in the Infirmary for Diseases of the Nervous System, Philadelphia. The chapter on the heart is also based largely on these same observations, but also on a review of the published fatal cases in the literature of the subject since 1881, and perhaps not the least important part of the book is a very carefully prepared table, showing the state of the heart in 73 cases which proved fatal, compiled from the literature of Europe and America. The references here, and indeed throughout the book, are very precisely and fully given, and cannot but prove most useful to those wishing to consult the original sources.

There is a fairly good but short historical account of chorea, but there is no notice of its geographical distribution, although, in the chapter on etiology, the author says the disorder is rare in the Negro in America, and apparently unknown in the full-blooded Indian, but it is seen occasionally in the half-bloods.

Among the general etiological causes, the author recognises the influence of season—November showing the fewest (3 per cent) and March the greatest (14 per cent) number of attacks—and he remarks on the parallelism between the incidence of chorea and rheumatism in these months. He assigns the usual place to psychical influences in the causation of chorea, but in the matter of family predisposition no place is given to epilepsy, insanity, hysteria, or alcoholism. Naso-pharyngeal irritation has been alleged as a factor in the causation of chorea, but, as the author says, such cases are more commonly examples of habit spasm than of true chorea. Erosions of the mucous membrane of the mouth and throat have also been laid under contribution as indirect causes of chorea by affording paths of entry for micro-organisms. With respect to the alleged relation of eye strain to chorea, while not committing himself by any direct personal statement, he quotes Stevens (*Trans. New York Academy of Medicine*, 1874-76, and *New York Medical Record*, 1876), as alleging that ocular defects lie at the basis of many of the cases.

De Schweinitz (*New York Medical Journal*, 1887) is quoted as having examined 50 cases of chorea in children, and to have consulted the records of others in a considerable number of cases—in all, 227, and his conclusions are as follows:—

“Hypermetropia and hypermetropic astigmatism are vastly the preponderating condition in the eyes of choreic children, being found in about 77 per cent of the eyes of choreic children, exactly as hypermetropic refraction is the preponderating condition in childhood, being found in 76 per cent of the eyes of children in the elementary schools.”

As the result of further observation (1894), De Schweinitz gives it as his opinion “that ordinary chorea and many of the forms of facial spasm, habit spasm, &c., are materially benefited by correcting refractive errors and anomalies of the ocular muscles, just as they are helped by a variety of other treatments, but I do not believe that there is any proof to show that eye strain of itself is responsible for their origin, with perhaps the single exception of the so-called habit spasms, affecting the orbicularis and immediate facial area,” and he adds, “in a constitution predisposed to chorea, I presume eye strain is a very important factor in fostering and perhaps provoking attacks; but that is all.”

This view of eye strain, as a cause of epilepsy and chorea, has not found much acceptance in England. No doubt, every ophthalmic surgeon is familiar with cases where the twitching,

when solely, or perhaps chiefly, in the orbicular muscle of the eye, may have been relieved by the correction of the ametropia, but it is more than doubtful if any advantage is to be looked for in the correction of optical defects in severe cases of either chorea or epilepsy. Doubtless, it is right that all sources of reflex irritation should, as far as possible, be removed, in dealing with one or other of these diseases, but the age of many of the children would be a serious obstacle in correcting astigmatic errors, and could only be attempted in the mildest cases.

The rheumatic relation of the disease is recognised. In 554 cases under observation there was a history of rheumatism *in the family* in 15·5 per cent, and in 15·8 per cent *of the cases* there had been at one time or another acute or sub-acute articular rheumatism, while in an additional 6 per cent there was a distinct history of pains presumably rheumatic, although not associated with joint trouble; together about 22 per cent—a proportion which is practically identical with that given for this country in the report of the Committee on Collective Investigation of the British Medical Association.

The chapter on the heart is very interesting, and embraces a study of the heart during the attack, its condition in fatal cases, and its subsequent state in those who have suffered from chorea. Of the 554 cases embraced in the enquiry, 30·7 per cent developed cardiac murmurs during the attack—basal, 12 per cent, apical 88 per cent—and in another series of 141 cases, observed in out-door practice, the proportion was just under 30 per cent, and the author calls attention to the extraordinary frequency of endocarditis in the cases proving fatal—an endocarditis affecting, for the most part, the mitral valve. He says, "There is no known disease in which endocarditis is so constantly found *post-mortem* as chorea—it is exceptional to find the heart healthy."

The results of the examination of a large number of patients, with respect to the state of the heart subsequent to the attack, are most instructive as to the influence of chorea in the genesis of organic heart disease, and especially mitral valvular disease. 140 patients were examined at periods varying from 2 to 16 years subsequent to the attack of chorea. "In 51 the heart was normal, in 17 there was disturbance that might reasonably be regarded as functional, and in 72 there were signs of organic heart disease."

The author's conclusions are (a) that endocarditis is a very common complication of chorea; (b) that in the majority of

cases the endocarditis is independent of, and is not associated with, acute arthritis, unless, indeed, we regard the valvular lesion as itself a manifestation of rheumatism; (c) that in a considerable proportion of cases, much larger than has hitherto been supposed, the complicating endocarditis lays the foundation of organic heart disease.

The section on the pathology of the disease is somewhat unsatisfactory, the author contenting himself with the statement that a satisfactory account of the pathology of the disease cannot yet be given, and referring the reader to the standard books on neurology for the current views thereon. Well, although this may be a discreet course when one has no new light to shed on a vexed question, it is not what we would look for in a book specially written, as we would presume, to elucidate a subject.

He occupies some space in presenting the usual reasons which are urged for placing chorea among the acute infections, but without any very clear indication as to his own position. Choreia has, in turn, been claimed as rheumatismal, a neurosis, and, in the last few years, it has not escaped the ever flowing tide of opinion as to the rôle of infection in the causation of disease; and, indeed, some have declared for a *specific* microbial origin, while, by others, a less specific, although infective, origin is alleged. So far as we are aware, the only observations in favour of the view of a specific microbe are those of Pianese published in *La Riforma Medica*, of date July, 1891, where he relates his experiences in the cultivation and isolation of a micro-organism, from the spinal cord of a patient who had died in a severe attack of chorea minor, and which he was able to inoculate under the dura mater, the sheath of the sciatic nerve, the nasal mucous membrane, and into the anterior chamber of the eye of animals, with what he calls "*positive results*." The animals became apathetic, trembling and convulsive movements followed, and ultimately death, while, at the examination, the bacillus was again found exclusively in the nervous system. From this, Pianese concluded that these organisms were the *specific* cause of the disease.

Triboulet, on the other hand, as the result of cultivations made from the blood of choreic patients, has come to the conclusion that a specific organism does not exist, which locates itself solely in the nervous textures, but that the symptoms are due to the action of the soluble products of micro-organismal growth on the cerebro-spinal axis. This determination on the nervous system, however, according to

Triboulet, is brought about by the neuropathic tendencies of the individual.

Certainly, the view of the infective nature of chorea might be held, on the face of it, as probable, in the presence of the frequency of the associated endocarditis in such a vast number of cases. On the other hand, it is very difficult to account for the cases arising from fright, almost, if not quite at once, on this hypothesis; the latter seem to us much more explicable on the basis of a "neurosis," and we know that such a cause can be effective in producing disturbances of muscular action, as in paralysis agitans, while the mental disturbances at times observed, quite apart from feverishness, would also point to disturbances in the nervous centres, probably functional in character, and it seems to us that there would be great difficulties in applying the view of the micro-organismal origin of chorea to the notoriously hereditary form known as Huntington's chorea.

The pathology of the disease is still obscure, and the treatise before us cannot be said to have contributed to its elucidation. However, the book brings together most of what is presently known on a very interesting subject, and is so far useful. It is well and carefully written, the typography good, and moderately free of faults.

A Treatise on Diseases of the Ear and Naso-Pharynx. By T. MARK HOVELL, F.R.C.S. Edin., M.R.C.S. Eng. London: J. & A. Churchill. 1894.

THIS is a goodly volume of 700 pages, and is probably the largest work on diseases of the ear from the pen of an English author. After the recent English translations of the classical treatises of Politzer and Gruber, some may be inclined to ask if there is any *raison d'être* for another large work on the ear. But we may all admit that the text-books of the two great Vienna specialists stand unrivalled, and yet welcome a work such as this of Dr. Hovell, because it presents the British aspects of the subject, and shows the character of the work being done in this country.

Dr. Hovell begins in the usual way with a description of the structure of the various parts of the ear, which is followed by chapters on Methods of Examination and Methods of Treatment. The latter chapter is by no means complete, as we fail to find descriptions of such methods of treatment as—local abstraction of blood, incision of tympanic membrane,

artificial aids to hearing, as well as some other methods of treatment which would naturally be looked for in such a chapter. Following these general subjects comes the special section of the work, beginning with diseases of the auricle and external auditory canal. As befits, however, their greater importance, the diseases of the middle ear occupy the largest part of the work, and their description is appropriately preceded by a chapter on the nose and throat—one of the freshest chapters in the book. The difficult subject of the internal ear is skilfully treated, and the volume concludes with a useful chapter on life assurance in connection with diseases of the ear.

An important feature of the work is the section devoted to the naso-pharynx and pharynx; this has almost the fulness and detail of a special treatise. The treatment of post-nasal growths is particularly interesting to the aural specialist, and one turns with interest to Dr. Hovell's views on the question of instruments and anæsthetics in the removal of these growths. He warmly advocates the use of the forceps modified by himself, and is decidedly opposed to the employment of Gottstein's curette and other forms of ring-knife instruments. He discusses with great fulness the burning question of anæsthetics. The value of his remarks on this subject are enhanced by the fact referred to in the preface that they embody valuable suggestions by Dr. Frederick Hewitt, the well-known anæsthetist. Dr. Hovell pleads for ether, or rather nitrous oxide gas followed by ether, in preference to chloroform, and is emphatic in his opinion that the former is much safer than the latter, especially in operations on the naso-pharynx. In regard to the position of the patient during this operation under general anæsthesia, he does not adopt the usual practice of placing the patient on his back with the head hanging over the end of the operating table. Dr. Hovell also believes that the danger of blood entering the larynx, a danger which led to the adoption of the dependent position of the head, is much exaggerated, if not altogether groundless, and he simply has the head of the patient on a level with the body. In this position the bleeding is no doubt much less than in the hanging position of the head, and Dr. Hovell has found that, by the prompt use of sponges, there is no risk of the blood passing into the larynx. While it is no doubt interesting and profitable to have the views of so experienced a specialist on such important points, we cannot ignore the practice of other experienced and able authorities, who trust to chloroform, cautiously and lightly

given, so as not to abolish the cough reflex, and who have found the dependent position of the head a distinct safe-guard. While, in regard to the author's condemnation of the curette, it is to be remembered that many of the best authorities, both in this country and the continent, have found this form of treatment most satisfactory.

In the section dealing with affections of the mastoid process, we find an excellent *résumé* of Barker, Schwartz, and Politzer, on the modes of perforating the mastoid, and the circumstances calling for this operation. By bringing under contribution the best and most recent authorities, the author has usefully supplemented his own personal experience and views. We were surprised, however, to find no reference to the mode of perforating the mastoid by suitable dental burs, propelled by a dental engine, which has been proved so useful in the hands of Professor Macewen and Dr. Barr. For safety, we believe this method stands unrivalled, especially in the chronic forms of mastoid disease, where great difficulties are often encountered in the operation. By this method of operating, the antrum and attic are reached with greater security to the important neighbouring structures than by the chisel, or gouge alone. We are glad to see emphasis given to the important difference, first pointed out prominently by Politzer, between operations on the mastoid undertaken for the relief of acute purulent disease of the middle ear, and those undertaken for the cure of old-standing cases. While, in the acute purulent collections in the mastoid, the operation is simple, easy, and almost invariably successful, it is, on the contrary, in the chronic forms difficult, sometimes extremely so, while the results are by no means always satisfactory. Thus, statistics, professing to show the results of operations on the mastoid, which take no cognisance of these distinctions, are utterly unreliable; the two classes of cases should always, in deciding as to the results of the operation of perforation of the mastoid, be taken quite separately.

It cannot be said that the illustrations, of which there are 122 in the form of woodcuts, form a special feature of the work. In most cases they are taken from the instrument-maker's catalogue. In the anatomical section we do not observe any original illustrations, while the comparatively few illustrations of morbid appearances, especially of the tympanic membrane, is a defect which should be remedied in the second edition.

We congratulate Dr. Hovell on his important and valuable treatise, which should be in the hands of all who are engaged

in special aural practice. General practitioners, anxious to become familiar with the nature and treatment of ear diseases, will find it very readable, and may rely upon its information being full and up to date.

Pulse-Gauging: A Clinical Study of Radial Measurement and Pulse-Pressure. By GEORGE OLIVER, M.D. Lond., F.R.C.P. London: H. K. Lewis. 1895.

THIS work is deserving of careful attention on the part of practitioners, for it embodies the results of extensive observations which have been conducted, in large measure, on original lines. Dissatisfied, after patient trial, with what the sphygmograph could yield him, the author invented two entirely new instruments, which he has named the "Arteriometer" and the "Pulse-Pressure Gauge," and which, he says, he would not now like to be without in his clinical work. The former records the variations in the calibre of the radial artery; the latter records the changes in the blood-pressure within the vessel. The principle of the *arteriometer* is simple enough. Assuming that the lumen of the radial artery at the wrist is cylindrical, and that the vessel is resting on the bone, then the space traversed by an instrument from the time when it begins to compress the artery till the time when it obliterates its lumen is equal to the internal diameter of the vessel. The *arteriometer* registers this on a dial which is graduated in tenths of a millimetre. When the lumen is completely obliterated, pulsation beyond the point of pressure will no longer be felt. Any source of fallacy—*e.g.*, from the compressibility of the overlying soft tissues—is, in the great majority of cases, so slight as not to detract from the practical value of the observation.

The calibre varies, in normal conditions, with the posture of the body (recumbent, sitting, or standing). The recumbent posture is commonly characterised by a minimum calibre in vigorous persons; but, under certain circumstances—*e.g.*, during the digestion of a full meal, or in fatigue—the calibre may be at its maximum while the individual is recumbent. Muscular activity, digestion, massage, and external temperature are some of the many agencies that influence the vascular calibre in health. In pathological conditions, the physiological variations may be disturbed in a very marked manner. The effects of posture on the radial calibre have been found by the author to constitute the most convenient method by which to apply

the knowledge of this kind already gained to the investigation of disease. As a rule, it is sufficient to apply the arteriometer in the sitting and recumbent postures; but it is sometimes advisable to take an observation also while the patient is standing. The principal deviations from the normal are these three:—(1) Undue persistence of the maximum calibre in the recumbent position; (2) Absence of the postural variation; (3) Unduly restricted or unduly ample range of the postural variation. The first occurs in asthenia and in irritative disorders; the second in chronic renal disease, gout, myxœdema, and acquired syphilis; the third chiefly, it would appear, in conditions of abnormal arterial tension.

The author shows how the arteriometer may prove serviceable in the diagnosis of Bright's disease, myxœdema, syphilis, gout, angina pectoris, and atheromata. He points out its value in indicating the appropriate line of treatment in particular cases, and in showing the effects of the treatment employed. The arteriometer, as applied to patients under various anæsthetics, and to healthy subjects after the administration of extracts of suprarenal bodies, thyroid glands, and cerebral grey matter, has furnished the writer with results which seem to us worthy of careful study. Brain and thyroid extracts increase, while suprarenal extract diminishes the radial calibre.

The *pulse-pressure gauge* is not unlike the arteriometer in structure, but the dial registers from zero up to 600 grams, in gradations of 5 grams each. It is essential that the instrument be accurately adjusted, and directions are given for the attainment of this object. The first fact to be ascertained is the difference between the maximum pulse-pressure, which is due to ventricular systole, and the minimum pulse-pressure, which is due to arterial systole or ventricular diastole. The amount of this difference is of importance from a clinical point of view, for it decreases as intra-arterial pressure increases, and *vice-versâ*. A summary is given of these observations of the author, which represent collectively the clinical information to be got from the instrument. The significance of the "expansile reaction," induced, when an artery is compressed to obliteration, on the proximal side of the block, and of the "reflux beat," which occurs distally to the block in cases of high tension, is duly considered by the author. He deals at some length with the help afforded by his two instruments together in observing the effects of treatment of plus-arterial tension by the recumbent posture, by diet, by mineral waters and baths, and by vaso-motor relaxants. This is followed by a summary of the conclusions

arrived at, and, finally, by some remarks with regard to recent experiments on animals, which go far to corroborate the views which the author had already come to as a result of clinical observation.

This work is not large; the style is condensed rather than otherwise; the type is good. We have noticed only one misprint—*Treatment*, in the heading of page 63, ought to read *Diagnosis*. To appreciate the book fully will require that some time and trouble be spent over it; but it is refreshing to meet with an author who is opening up new paths of research, and it will be pleasant to find that the promise of recent years in the work of the author will be borne out by the experience of other investigators in the years that are to come.

A Dictionary of Medicine, including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. By Various Writers. Edited by SIR RICHARD QUAIN, Bart., M.D. Lond., LL.D. Edin., F.R.S.; assisted by FREDERICK T. ROBERTS, M.D. Lond., and J. MITCHELL BRUCE, M.A. Abdn., M.D. Lond. New Edition, revised throughout and enlarged. In Two Volumes. London: Longmans, Green & Co. 1894.

QUAIN'S *Dictionary of Medicine* is a standard work, well known to the profession. Our review of the first edition appeared in our issue for April, 1883, at page 294, and the favourable opinion we then expressed has been fully justified by the cordial reception of the work by the profession. Since its first appearance, in 1882, more than 33,000 copies have been issued in this country and in America, a most gratifying success for a medical work. In the present edition "the several articles have been revised by the original writers, so far as this has been practicable. When death unhappily prevented such revision, the task was committed to other not less competent writers. The services of equally competent contributors were secured for the preparation of new articles." The work now consists of two volumes, and has been entirely reprinted in larger type, so that the number of pages has been increased from 1,834 to 2,518, and 43 new illustrations have been added, making a total of 181. The editor and his assistants are to be warmly congratulated on the success of their labours, and we feel sure that the new edition will be as favourably received as the first. The book maintains its place as a standard work of reference for the practitioner.

The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D. Ninth Edition. London: H. K. Lewis. 1894.

WE have pleasure in calling the attention of our readers to the appearance of the ninth edition of this well-known textbook. In the present issue the subject of bacteriology has received special attention, and new sections dealing with the general therapeutics of the principal systems and organs of the body have been added. It is time, however, that the error of stating that cancer is the most common form of solid tumour of the mediastinum should be eliminated.

The Dyspepsia of Phthisis: its Varieties and Treatment, including a Description of Certain Forms of Dyspepsia associated with the Tubercular Diathesis. By W. SOLTAU FENWICK, M.D. London: H. K. Lewis.

THIS book is a most readable one, and we have pleasure in recommending it as likely to prove of much service to the general practitioner. The observations, upon which its conclusions are based, were made in great part in the Brompton Hospital for Consumption, and were directed so as to connect clinical data with the results of *post-mortem* investigation. With regard to the gastric symptoms so often noted during the course of phthisis, it seems to be established that in the initial stages of the pulmonary disease the dyspepsia is purely functional, whereas in the stage of excavation there is present a chronic gastro-intestinal catarrh. Woodcuts illustrative of the latter condition are given, and the theory of its etiology, which is adopted, is that it is "probably due to the chronic absorption of certain toxic substances which are manufactured in the pulmonary cavities." At the *post-mortems* attention has also been directed to such changes as dilatation of the stomach, *post-mortem* digestion, lardaceous disease of the stomach, and tubercular ulceration of the stomach. The author agrees with other writers as to the extreme rarity of the last-mentioned lesion.

One important point in reference to the *initial* dyspepsia is, very properly, strongly insisted upon—viz., the fact that it may constitute the sole symptom of the (actually present) pulmonary disease. This is specially likely to be the case among patients who are ignorant and unobservant, and many mistakes in diagnosis might be avoided if all adopted Dr.

Fenwick's rule "that, in every case of severe dyspepsia, especially if it be associated with weakness, loss of flesh, or antipathy to fat (food), a thorough examination of the chest should be made, and that the state of the respiratory system should be the subject of repeated investigation during the whole course of the disorder."

A chapter is devoted to dyspepsia *preceding* phthisis. This form of dyspepsia is considered to be specially common among those with a predisposition to tubercular disease, and the lowering of the general health resulting from the gastric disturbance is held to lessen resisting power, and thus lay the patient open to attack. It may be remarked, however, that in the description of the atonic variety of this "preceding dyspepsia" it is mentioned that the subjects of it are usually females from 13 to 25 years of age, and that they are anæmic. Details as to the examination of the blood would have been useful here, to determine whether chlorosis may not be the important factor in the etiology of the dyspepsia, and of the depreciation of general health.

Another section, which we would venture to criticise, is that dealing with the relative frequency of perforation from tubercular and from typhoid ulceration of the bowel. Dr. Fenwick controverts the usual statement as to the latter being the more common, but we fear that there are loop-holes in his argument. Thus, while he distinguishes partial and complete perforation from tubercular ulceration, he does not do so for the other; so far as we have seen, he takes no account of the cases of tubercular disease of the lungs which recover; and the proportion of cases of perforation (complete) which he mentions for enteric fever is not nearly so high as that given in Murchison's classical work. This question of relative frequency is, however, but a side issue. The main arguments of the book are carefully elaborated, and copious references are given to the literature of the subject. We would thus give the volume a very hearty recommendation.

The Senile Heart: Its Symptoms, Sequelæ, and Treatment.

By GEORGE WILLIAM BALFOUR, M.D. St. And.; LL.D. Ed.
London: Adam and Charles Black. 1894.

To write a work on some medical topic is for the young, and therefore unknown practitioner, the order of the day. He finds, without any difficulty, a publisher who will publish anything if he is paid for it. It needs money to do it well; for long-continued advertising in the medical journals is

expensive. But it pays in the end, especially if the subject be a popular one; and what matters it though professional respect be forfeited if a crowd of chronic valetudinarians throng one's rooms?

Such thoughts were suggested to us partly by the fact that here we have a work of a totally different character, and we most cordially welcome it. The title and the author's name are sufficient, for George Balfour of Edinburgh was an authority on the heart ere that of the budding medico had begun to beat. We had almost wished, therefore, that on the title-page there had been the name without the appointments, and the preface without the town address.

The work itself is, in the main, a statement of the author's opinions regarding the nature and significance of the various forms under which the senile heart is made manifest. We have chapters on "How the Heart is Affected by Age," "Symptoms and Signs of the Senile Heart," and on the more special phenomena of palpitation, tachycardia, bradycardia, &c. The various concomitants and sequelæ of the senile heart are next brought under review, while the concluding portion of the work is devoted to therapeutics.

There is much in the volume before us that is of the highest value. The author's wide and careful reading enables him to present to us the best of the old writers and the latest of the new, as he leads us up to the various theses which his own long experience and observation have independently established. On what better basis, for example, could any of us build our more hopeful prognosis regarding certain forms of heart lesion than the following:—"I am well acquainted with many cases in which cardiac disease of various forms, both mitral and aortic regurgitation and, more rarely, mitral obstruction, has been certainly known to exist from youth to age for periods varying from forty to fifty or even more years, without any marked discomfort, except when compensation has been temporarily ruptured by illness. Many of these sufferers have led very active lives; some of them have been members of my own profession, who have shirked no work, however hard; and it has seemed to me that the most active have suffered least." And when the practical man turns to the chapters on Therapeutics, he will not be disappointed. He will find a complete review of the various regiminal and dietetic forms of treatment to be adopted, as well as those which are purely medicinal, along with many suggestions, or rather injunctions, founded on a long and cultured experience.

While that is so, if the work be tested according to the

standard which the author's position demands, it is found to be not without some points of weakness. For example, there is occasionally a tendency to assert in *ex cathedra* form a doctrine or proposition which has been challenged for years—to assert it and pass on. “The *appendix auriculi* is not always long enough to reach the surface, and in such a case the auricular murmur is naturally not to be heard; but in all cases in which this murmur is audible, it may be accepted as an early and infallible sign of mitral regurgitation.” It is long since Naunyn propounded such a theory; but it is a theory at the best, and one that is far from being generally held. Again, a few pages further on, we read that “An accentuated aortic second, coupled with a systolic aortic murmur, indicates an actual dilatation of the aortic lumen, and this may be confirmed by percussing the aorta and mapping out its dulness.” This mapping, we venture to think, would require the imagination of a Piorry. We have the impression it would have something of the accuracy of the maps of Scotland that we used to draw at school—from memory.

There is also an undue tendency to the use of obsolete and uncommon words, and, may we add, Latin phrases. “Worsening” may be taken as an example; and we will sometimes find on the next line such a very different type of word as “erethism” when “irritability” would do as well. We think that something further might have been said about “cholate of soda,” which is stated on page 293 to slow the pulse.

Therapeutics: its Principles and Practice. By H. C. WOOD, M.D., LL.D. London: Smith, Elder & Co. 1894.

THE value of Dr. Wood's treatise has now received the substantial testimony of a ninth edition. It is well known to the profession as a standard work on therapeutics, dealing with the various curative agencies as well as with the actions and uses of drugs. The present issue preserves all the features which have made it deservedly so popular, and full information has been added concerning most of the more recently introduced therapeutic agents. We are somewhat surprised to find no mention of the use of the thyroid gland in myxœdema and in skin diseases, and no reference to transfusion in the treatment of pernicious anæmia. Wright's researches on the influence of calcium salts on coagulation of the blood also appear to have been overlooked. The book, however, is too old and valuable a friend to allow these omissions to seriously impair its usefulness.

Prescribing and Treatment for Infants and Children. By PHILIP E. MUSKETT. Third Edition. Edinburgh: Young J. Pentland.

THIS is a useful and practical little volume. It well deserves the success it has already attained. The author has arranged, in a very handy and convenient form, directions for dealing with the various diseases of children, and he offers many sensible suggestion upon the selection and combination of remedies. Even an experienced practitioner may find many helpful hints in Dr. Muskett's pages.

Manual of Diseases and Deformities of the Spine. By R. L. SWAN, Fellow and Member of Council, and for many years Examiner in Anatomy and Surgery and Operative Surgery, Royal College of Surgeons, Ireland, &c. With thirty-three lithographic illustrations. Dublin: Fannin & Co. 1894.

THE author of this work must be congratulated on the success with which he has compressed into the moderate compass of less than two hundred pages the essential facts as to pathology, diagnosis, and treatment of so interesting a class of surgical affections. When it is mentioned that he treats of such out-of-the-way subjects as dermoids of the vertebral region, congenital sacral dimple, vortex coccygeus, and hypertrophy of the coccygeal gland, as well as discusses fully spinal curvature in its various forms, railway spine, coccygodynia, wry neck, and sacro-iliac disease, it will be seen that the descriptions must necessarily be in many instances very brief. They are, however, accurate and suggestive. No essential facts are omitted, and the author is invariably intelligible and practical.

In the treatment of spinal abscesses, he is strongly opposed to early evacuation, and, following in the wake of Billroth, Pirigoff, and other competent surgeons, would on no account open such an abscess unless it was rapidly increasing and tending to burst. He adds: "If it shows a tendency to grow rapidly, or to point, the choice would lie between aspiration and evacuation of the abscess. I have seen excellent results follow aspiration. As there can only be a partial evacuation of the more fluid contents of the sac, the good effects cannot be considered to have a similar explanation as those which ensue on the partial withdrawal of the fluid of the peritoneal cavity." (Neither his theory nor his English is beyond cavil.)

Where re-accumulation takes place, he acknowledges evacuation by incision to be called for; but he does not accept the necessity for drainage. "The contents," he says, "may be washed out by hot water, and then a solution of boric acid, all fluid drained out, and an emulsion of iodoform in sterilised glycerine may be injected. Any shreds of loose cyst wall near the aperture may be removed, and *the incision closely stitched by aseptic silk.*"

The Dublin surgeons appear to have a great fancy for lithographic illustrations, and the present work is a prominent example of that weakness, if such it may be called. In this case they are produced by the Edinburgh firm of W. & A. Keith Johnston, and are excellent specimens of their art. They serve, however, to demonstrate how unsatisfactory lithography is in displaying the external markings and the internal structure of bone.

The book is evidently written by one thoroughly conversant with his subject, and we can cordially recommend it to all desiring aid in the treatment of cases of spinal disease or injury.

Text-Book of Abdominal Surgery: A Clinical Manual for Practitioners and Students. By SKENE KEITH, F.R.C.S. Ed., assisted by GEORGE E. KEITH, M.B., C.M. Edinburgh and London: Young J. Pentland. 1894.

THE authors have attempted a task of some magnitude, encouraged thereto by their "most intimate professional relations, with Dr. Thomas Keith, extending over a period of seventeen years" (preface).

The sentence quoted from the preface strikes the keynote of the entire work. It forms a volume of five hundred pages, in two sections.

Section I deals with Abdominal Surgery in general. The first four chapters contain an account of abdominal section—the mode of preparation for it—the operation—and the after treatment. Following this come two hundred and forty pages devoted to surgical affections of intra-abdominal parts in general, and the operations performed for their relief.

Section II deals with the Surgery of the Abdomen peculiar to Women.

The two sections are of very unequal merit. The second is an accurate and full reflex of the teaching of Dr. Thomas Keith, and will amply repay perusal by those not already familiar with his work. Amongst other points of interest in it may

be noted the authors' opinion on Apostoli's treatment of uterine fibroids, and on obstructed labour. In regard to the former, the authors quote cases cured by it in the hands of Dr. Thomas Keith, and, while admitting the existence of a "somewhat unreasonable objection to it" on the part of certain members of the profession, still express unabated confidence in its efficacy. Treating of obstructed labour, they write: "When the natural outlet is so small that it is impossible to extract *even a mutilated child*" (the italics are ours), "one of four operations will have to be resorted to." The four are—(1) symphysiotomy, of which it is said the "application is limited, and it cannot be of service when the contraction of the pelvis is great;" (2) laparo-electrotomy, which "has not been performed at all frequently, possibly because the description appears to imply that great surgical skill and anatomical knowledge are required;" (3) Porro's operation; (4) Cæsarean section, which the authors think "will become the operation of election." We had thought recent results in Cæsarean section, in the production of which Glasgow has had her own share, had justified the adoption of the operation in a larger class of cases than merely of those in which it is "impossible to extract even a mutilated child."

The first section of the work, that dealing with the abdominal affections and operations which fall to the hand of the general surgeon, is, in many parts, incomplete or not in accord with the best teaching of the present day. A few instances will suffice to illustrate this. *Surgical kidney* or *pyelonephrosis* is dismissed in a paragraph of three lines, as "not a condition which can be interfered with surgically." *Abscesses* in the abdominal wall are to be treated by "poultices" before incision. In the treatment of *hydatid cysts* no mention is made of the fact that the true membranous parasitic cyst is often separable from the external fibrous pseudo-cyst, and of the latest and best form of operative treatment founded on an appreciation of this fact. The treatment of *fluid in the peritoneal cavity* consists in *inter alia*, "painting the whole surface of the abdomen with tincture of iodine," and so on.

In the description of many of the operations the lack of illustrations and of accurate detail in the text is very apparent. We doubt whether anyone reading for the first time the description of, say, pylorotomy or circular enterorrhaphy, from this work could form any very definite idea of the operation.

The many imperfections of Section I will, we fear, go far to prevent the work taking that place in surgical literature to which the excellence of Section II entitles it.

Atlas of the Human Brain and the Course of the Nerve-Fibres. By DR. EDWARD FLATAU, with a Preface by PROF. E. MENDEL. Translated by WM. NATHAN, M.D., and JOHN H. CARSLAW, M.D. Berlin: S. Karger. Glasgow: F. Bauermeister. 1894.

DR. FLATAU'S intention in producing this atlas is stated in the preface to be "to supply students and physicians in the *post-mortem* room with illustrations of the brain as nearly natural as possible in details and size." The plates are photogravures of great perfection and beauty, and are especially successful in displaying the contrast between the white and grey matter in the fresh brain. "The photographs," he states, "were taken by rinsing the fresh brain or its sections in water, and then fastening them with cement upon a plate, as nearly in their natural position as possible. The camera was then fixed by wooden screws so as to photograph directly from above downwards. The time of exposure (using small diaphragms) was five to ten minutes for sections of the brain, and twenty to thirty minutes for uneven surfaces."

The descriptive tables to the plates are in Latin, and there is an obvious advantage in using a language known throughout the civilised world. It is, however, probable that some of the terms used will puzzle the English reader; such, for instance, as *brachium conjunctivum*, the name given to the *processus cerebelli ad testis*, and *fossa rhomboidalis* for the *fourth ventricle*.

In addition to the photographs of the brain, the author gives an elaborate plate showing the course of the nerve-fibres in the brain and spinal cord, and twenty-five large pages of letterpress, descriptive of the various nerve-tracts. It is in the latter section that the translators have found employment, and we are able to say that they have done their work well, and that the English is, for the most part, smooth and intelligible.

Physiology for Beginners. By M. FOSTER, M.A., M.D., F.R.S., Professor of Physiology in the University of Cambridge, and LEWIS E. SHORE, M.A., M.D., Fellow of St. John's College, Cambridge, and Senior Demonstrator of Physiology in the University of Cambridge. London: Macmillan & Co. 1894.

IN the preface we find it stated that "This little work is intended for those who, without any previous knowledge of

the subject, desire to begin the serious study of Physiology. It is written in a more elementary and didactic manner than the *Elementary Lessons* of Professor Huxley, and, it is hoped, may serve as an introduction to that volume. Though the whole has been supervised by Professor Foster, who therefore holds himself equally with Dr. Shore responsible for its contents, the work belongs to the latter, since he has written it."

A careful perusal of the volume leads us to rank it as perhaps the best introduction to the study of Physiology yet published, with due regard to its size.

It is clear and logical in arrangement, and free from the childishness of language and illustration which so often characterises elementary primers. Every sentence, indeed every word, seems to have been carefully weighed in order to convey as full, accurate, and intelligible an account of the subject as was possible in the limited space, and much judgment has been shown in the selection of material. The illustrations, many of them new, are exceedingly good, and the numerous directions for the study of the subject through personal observation of simple tissues and organs as they may be seen in the rabbit, the frog, the sheep's heart, and the like, give a practical turn to the student's work that cannot fail to rouse his interest and cultivate his powers of observation. Though highly condensed, it is deeply interesting, and may be confidently recommended as supplying a reliable basis upon which to build up a truly scientific knowledge of Physiology.

The Refraction of the Eye. By STANFORD MORTON. London : H. K. Lewis. 1894.

THIS little book is not so much an introduction to the study of the refraction of the eye as a clear and precise statement of how the refraction is to be determined. So far as it goes it is excellent, and must be of considerable use to the busy practitioner, and is likely to be of some service even to students at ophthalmic clinics. Time was when even house surgeons at eye hospitals had but an imperfect knowledge of the ophthalmoscope, and when sometimes surgeons had to obtain help to measure refraction carefully. These days now are over and past, and a very considerable proportion of those who graduate have a more or less extensive knowledge of physiological optics. As such knowledge becomes more

and more general, there will be a corresponding restriction in the usefulness of such books as this, for it is a mere statement of facts without demonstrations of principles. That there still is a demand for such books is proved by the circumstance that Morton's book is now issued in its fifth edition, and we cordially congratulate the author and welcome the volume.

When the sixth edition appears, it would be well were the author to say something about the working of ophthalmometers, such as that of Javal or of Reid. These useful instruments are now in almost every clinic, and are a great saving of time. We have noticed one or two minor errors which perhaps might be altered in the next edition. Indication No. 4, on page 21, is quite as true of many "fundus conditions" as of astigmatism or hypermetropia without accommodation. We would also point out that the corneal meridian of maximum refraction is not always at right angles to that of minimum.

Medical Nursing. By the late JAMES ANDERSON, M.D.,
F.R.C.P. London: H. K. Lewis.

THESE lectures formed part of a series on the subject of "Nursing," delivered to the probationers of the London Hospital. Dr. Anderson's special province is that of Medical Nursing and Elementary Physiology. We have pleasure in stating that, in our opinion, the author has admirably fulfilled the aim which he has set before himself—to give a course of instruction which shall be at once practically useful and at the same time based on sound physiological principles. He seems, moreover, to have hit the happy mean between an undue elaboration in theory and a tedious discussion of those details which are only to be learned by practical work at the bedside.

Dr. Anderson's ideal of nursing is a high one. He has no sympathy with the nurse who carries out her orders machine-fashion. "Unimpatient, but alert in her attitude to her patient;" "A loyal and intelligent co-worker with the physician:" it is thus he sums up the qualities which the perfect nurse must possess.

The importance of having principles as well as experience to rely on is most apparent, as the author remarks, in private and district nursing, where the nurse is constantly liable to be thrown on her own resources, surrounded by conditions

to which she has had no precise parallel in her hospital experience.

In the different lectures, a short description of the functions of the various organs is followed in each case by a short discussion of the more common diseases to which they are liable. Now and again the picture is not quite complete, but this defect must be ascribed to the fact that the work has been edited from somewhat scanty notes, which Dr. Anderson's sudden death prevented him from amplifying. The style is always clear and succinct, and the illustrations are homely and apt.

We cordially recommend the book as among the very best of its kind.

The contents proper are preceded by a feeling and eloquently-worded tribute to its lamented author, from the pen of the late Sir Andrew Clark.

Since the above review was written, the second edition of this book has appeared. It is in all respects practically identical with the first, the rapid sale of which is a gratifying proof of its value.

A Syllabus of Lectures on Human Embryology. By W. P. MANTON, M.D., Detroit, U.S.A.

THIS small volume could only be recommended to students in actual attendance on the author's lectures, for which, no doubt, it is admirably suited.

With a fairly complete summary of facts in the text, accompanied by diagrams purposely left without any explanation or reference, it will form an excellent note-book, being interleaved all through; but otherwise it is unreadable and of little use. Exception must be made for a short but useful chapter on Practical Work, with which the volume concludes.

The Transactions of the Edinburgh Obstetrical Society. Vol. XIX. Session 1893-94. Edinburgh: Oliver and Boyd. 1894.

THIS volume, maintaining, as it does, the high standard of the previous issues of the Edinburgh Obstetrical Transactions, gives evidence to the excellent scientific work that is being done by Edinburgh obstetricians and gynaecologists.

Amongst the numerous papers the more important are—"The Third Stage of Labour," by Dr. G. E. Curatulo, of Rome;

"The Relation of Influenza to Gynæcological, Obstetrical, and Pediatric Cases," by Dr. J. W. Ballantyne; and "The Electrical Treatment of Uterine Fibroids and Subinvolution," by Dr. F. W. N. Haultain.

Dr. Berry Hart's paper, "The Pathological Classification of Diseases of Women, with a Plea for a Revision of Current Views," deserves very special consideration, aiming, as it does, at a truly scientific classification of such diseases. The discussion on "Should Antiseptic Vaginal Douching be made a Routine Practice in the Puerperium?" will be found most interesting both by obstetrical specialists and general practitioners. The numerous and valuable contributions to Foetal Pathology by Dr. J. B. Ballantyne are deserving of special mention.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1894-95.

MEETING III.—14TH DECEMBER, 1894.

The President, DR. HECTOR C. CAMERON, in the Chair.

I.—SPECIMEN OF CANCER OF THE LIVER, PROBABLY PRIMARY.

By DR. CHARLES WORKMAN.

Dr. Workman showed the above specimen, and sections from it were placed under the microscopes.

Summary of Clinical History.—"Patient, a pattern-maker, aged 41 years, was admitted to the Royal Infirmary on 4th August, 1894, complaining of pain in lower part of abdomen, and great palpitation with breathlessness. For three weeks previous to admission he had suffered from pains in the back, mostly on bending or changing position, and for three days before admission had been feeling pain in abdomen of a paroxysmal nature, and going through to the back. For seven years past he had been treated for cardiac disease after rheumatism. On examination, a diffuse swelling was felt in the epigastric region, and a sense of resistance in right hypochondriac region. There was considerable tympanites, which, on being dispersed, revealed a fairly large tumour in epigastrium and nodular tumour formations in right

hypochondrium, which have increased rapidly and palpably. There was considerable ascites for the past fortnight, and oedema of face and legs, especially on the right side, the dropsy of the face being transitory in its nature. At first a double murmur was heard in the aortic area, but latterly only one prolonged murmur could be made out. A mitral systolic murmur was also heard. Death took place on 13th September."

Post-mortem Examination.—Body well developed, but greatly emaciated. On opening the chest and abdomen a large quantity of blood-stained fluid escaped from the peritoneum. Right pleura also contained similar fluid. The right lung was comparatively free, but the left was very adherent from old pleurisy. Both *lungs* presented healthy appearances on section. The pericardium was very adherent all over from old pericarditis.

Heart.—The pulmonary curtains were very incompetent, and on opening up the right ventricle they were seen to be greatly thickened, the orifice having a circumference of about $1\frac{1}{2}$ inch. A little below the valve there is a fibrous band constricting the mouth of the ventricle, so that here it is hardly $1\frac{1}{2}$ inch in circumference. Both ventricles are greatly hypertrophied, and the cavities small, the aortic curtains are competent, and the valve appears healthy. The mitral is normal in size, and healthy, while the tricuspid is small, having a circumference of $3\frac{1}{2}$ inch. The aorta is somewhat atheromatous; the coronaries are fairly healthy.

Abdomen.—The *liver* is large (93 oz.), and very nodulated, especially the right lobe, which has on section much the appearance of the yellow parts of acute yellow atrophy. The surface view of the front of the liver, from its hobnailed character, closely resembles a fairly advanced cirrhosis. In the left lobe the disease is not so advanced apparently, and the nodules are more isolated. The nodules are soft to the feel, very friable, and resemble fat; some of them appear to be in the branches of the portal vein.

The *trunk of the portal vein* is distended, and choked with a substance apparently similar to the nodules in the liver; but this condition extends only a short way (about 3 inches) down the vessel. The splenic vein and the pancreas do not appear to be involved. The *spleen*, though a little enlarged and firm, appears normal in structure. The *pancreas* is firm, and on section appears almost quite healthy; at one part a few small yellow points are seen. The *kidneys* are somewhat congested; their capsules are very adherent, and there appears to be slight interstitial nephritis.

The *stomach, rectum, and bladder* present quite healthy appearances.

The bodies of the *vertebræ* are remarkably healthy in appearance.

Microscopic Examination.—Portions of the liver containing nodules were hardened in alcohol, and thin sections were made from them; also a piece of the mass in the portal vein, with part of the wall of the vein, was cut.

The nodules present the appearances of a carcinoma of the glandular type, with comparatively little connective tissue. The liver structure around the nodules appears to have been compressed by the new growth, which has evidently advanced rapidly, and in many places there seems to be an increase of connective tissue between the lobules, as if a cirrhosis had also existed along with the cancer. Some of the nodules are seen to be in the branches of the portal vein, as the wall of the vein and the accompanying ducts can be seen distinctly in the sections.

The mass in the trunk of the portal vein is found to contain cancer tissue, though the bulk would appear to be a thrombus which has formed on the tumour.

As no evidence of cancerous disease can be found elsewhere, it is probable that the disease is a primary cancer of the liver.

Dr. Joseph Coats thought that the case belonged to a very interesting and somewhat important group of tumours of the liver, usually described as adenoma. Perhaps that term was a little arbitrary, because the structure, as *Dr. Workman* had described, might very well be called carcinomatous; and *Dr. Coats* thought the distinctions between adenoma and carcinoma of the liver were very obscure, both as regards structure and general character. Still, there were distinctions which were important, and to which he might refer. In his (*Dr. Coats's*) cases of primary cancer of the liver (and they were not so rare as he had once thought) there had been one large tumour, evidently of long duration, and secondary tumours growing from it scattered throughout the liver; while in the other group of cases—to which he thought *Dr. Workman's* belonged, and which were much rarer than primary cancer of the liver—there was a curious connection between the formation of tumours and cirrhosis. As *Dr. Workman* had pointed out, this liver looked, on the face of it, like a cirrhotic liver. That seemed to be the general rule in cases of adenoma of the liver. There sprang up simultaneously, or nearly so, and apparently independently of one another, a multitude of tumours, as might be seen here. He did not know that *Dr. Workman*

had distinguished any one tumour in this liver as the primary tumour. That could always be done in primary cancer of the liver, while in adenoma there were a number of tumours, each one of which was as much primary as the others.

Another distinction was also quite obvious in the sections shown. The adenoma grew by itself, and did not infiltrate the liver. In one section they might see a wall, apparently of fibrous tissue, separating the growth and the normal liver tissue. In cancer, on the other hand, the tumour infiltrated neighbouring parts. The adenoma pushed them aside rather than infiltrated them.

These were points of distinction, but the distinction was somewhat arbitrary, and adenoma closely resembled cancer. This involvement of the portal vein looked very like cancer, but he thought that the case belonged to the other group. The case was an exceedingly interesting one, and well worthy of very careful record. As Dr. R. M. Buchanan had shown a case of adenoma of the liver to the Society¹ some time ago, he might have something to say on the subject.

Dr. R. M. Buchanan had been able to make only a casual examination of the sections, but they had suggested a resemblance between this case and adenoma. Beyond that he was not at present prepared to say anything.

Dr. Workman quite agreed with *Dr. Coats* that the case might be put down as one of adenoma rather than of cancer, but the difficulty he had had in coming to that conclusion was the fact that the tumour tissue was to be found in the trunk of the portal vein, and not only in the branches of that vein throughout the liver. He thought that the probable course of events had been that a cancer had arisen from the epithelium of a duct near the entrance of the portal vein into the liver, and that, after communication had been established with that venous trunk, portions had been washed by the blood stream into the liver, and these had given rise to the growths throughout that organ. There was no doubt that in certain places the tumour tissue could be seen to compress the normal hepatic tissue, and to be markedly distinguished from it. He admitted at once that it was not an ordinary cancer; but, from what he had found stated in *Ziegler's* work, he had thought that it might be put down as one of those rare cases in which primary cancer of the liver may be diffused throughout the organ. In other cases he had had of primary cancer of the liver, there had been one large tumour, itself occupying a great part of the organ.

¹ See *Glasgow Medical Journal*, 1892, vol. ii, pp. 142, 295.

II.—SPECIMEN OF UTERUS AND UTERINE APPENDAGES FROM A CASE IN WHICH PREGNANCY OCCURRED AFTER LIGATURE OF THE FALLOPIAN TUBES.

BY DR. MURDOCH CAMERON AND DR. R. M. BUCHANAN.

The following is the account of the clinical history in this case:—

“Mrs. M.I., æt. 24, third pregnancy, was admitted to the Maternity Hospital on 22nd October, 1894. On referring to a former Journal, it appears that she had Cæsarean section performed on her by Dr. Murdoch Cameron on 18th May, 1892, when she was delivered of a healthy mature child. She made a good recovery, and was dismissed on 25th June, the abdominal wound being almost healed. Since leaving hospital she has been fairly strong, being able to go about and do light house-work. At intervals she has suffered much from frontal headache, sickness, and sometimes vomiting, coupled with a general feeling of languor. These attacks came usually at intervals of about a month. She has never seen any trace of menstrual discharge. During last April she suffered almost constantly from sickness and vomiting after each meal she took. In May distension of the abdomen was observed, and at the beginning of June she felt quickening.

“24th October.—Patient’s height is 4 feet 4½ inches. She exhibits well marked signs of rickets in the lower limbs. She has been suffering for some days from pain, sometimes acute, in the epigastrium, and over the splenic region; this has been severe during this forenoon. Dr. Cameron determined to operate in the afternoon, and, after labour had been induced, the Cæsarean operation was performed. Numerous adhesions were found between the uterus and the anterior abdominal wall, apparently the result of the former operation. These adhesions necessitated an extension upward of the incision.

“25th October.—Patient is fairly well. She complains slightly of abdominal pain. Highest temperature, 101.2°. Half grain morphia suppository.

“26th October.—Sick, and retching at intervals; slight bronchitis; pain. Quarter grain morphia suppository.

“27th October.—Cough troublesome; face has lost its healthy look.

“12 NOON. Temperature, 104°; pulse, 140, small, weak, irregular. Still takes iced milk freely.

“4 P.M. Breathing badly; distension of abdomen, tympanitic.

"6 P.M. Seems to be sinking; semi-comatose; temperature, 104·2°; pulse, 150.

"28th October.—Temperature at midnight, 102·4°; pulse, 100. Tympanites somewhat relieved by starch and turpentine enema. Died at 8·5 A.M."

Dr. Murdoch Cameron said that this was the first case in which, after ligature of the Fallopian tubes, he had found pregnancy to occur. Dr. R. M. Buchanan would give a detailed account of the condition of the tubes as examined after death. He (Dr. Cameron) thought that, if he had given a greater strain at the time of the first ligaturing, this pregnancy would not have been possible. In his last case of Cæsarean operation he had taken the precaution of putting on a double ligature, cutting between, and making such a separation that he did not think union could possibly take place. It might be asked if they should not remove the ovaries. He thought not; that operation would be specially dangerous at such a time when the veins were large, and sepsis might so easily be introduced.

The death had been certified as due to peritonitis and Cæsarean section, for the patient had, before operation, suffered from acute pain in the splenic region, and some fremitus had been felt there. It was on account of those symptoms that he had operated without delay, the woman not having been in labour on admission, though near full term.

Dr. Cameron would suggest to Dr. R. M. Buchanan that he might make longitudinal sections of the uterus, with the object of searching for silk sutures from the first operation. Such sutures were sometimes extruded through the skin months after operation, and had then the same appearance as when introduced. None of the old sutures had been found here so far. Dr. Cameron's practice was to keep his sutures soaking in a 1 to 20 solution of carbolic acid in spirit. In case of any possible introduction of sepsis from the eyes of the needles, he had the needles boiled, and never used the same needle more than once, as harm might result from repeatedly passing a needle through the uterus. He had sixteen pairs of needles, and used eight for the uterine and eight for the abdominal wound.

Dr. R. M. Buchanan reported the results of the *post-mortem* examination, which were as follows:—

"*External appearances.*—The body is well nourished, but stunted, measuring only 52½ inches. The lower limbs show

the deformities of rickets, well marked in the long bones. The abdomen is much distended with gas. There is a sutured wound in the middle line measuring 6 inches, its lower end being about 1 inch from the pubes.

"*Thorax*.—The *heart* is normal. The *lungs* are hyperæmic and cedematous; some purulent fluid exudes from the bronchial tubes.

"*Abdomen*.—Several superficial coils of small intestine are much distended with gas; they are loosely glued together by fibrin. The *spleen* shows three deep notches, the one at the lower end so deep as to produce a somewhat pedunculated ear-shaped appendage. The abdominal cavity contains about 2 ounces of brownish fluid. The *kidneys* are very pale; they are of good consistence. The *liver* is also extremely pale; its cut surface is greasy, and suggestive of advanced fatty degeneration.

"The *uterus* is well sunk in the pelvis, and presents a median hyperæmic wound, the stitches on the upper end of which are buried in exudation. The anterior surface, from the lower end of the wound, is adherent to the abdominal wall and bladder by old fibrous bands.

"The *Fallopian tubes* are ligatured close to the body of the uterus; and each presents, at a short distance from these ligatures, a narrowing of the tube, which, in the left, is a mere ring-like constriction, and in the right a narrow fibrous-like cord $\frac{3}{16}$ inch in length.

"The uterus is opened posteriorly, and on examining the cavity it is found occupied by fibrinous shreds and blood clot, forming a viscid covering of its surface. The wound is firmly closed except at the upper end, where it gapes slightly, disclosing one of the silk sutures.

"The following are the *measurements of the pelvis*:—Conjugate, $3\frac{1}{4}$ inches; oblique, $4\frac{1}{16}$ inches; transverse, $4\frac{7}{16}$ inches.

"The *bowels* present nothing of special note.

"The *mesenteric glands* of the ileum are caseous.

"*Microscopical examination* of the Fallopian tubes, after hardening in Müller's fluid, showed the constricted portion in the right without any trace of lumen, while the constriction in the left was pervious throughout—the canal, however, being much narrowed, and the plications atrophied and irregular."

Discussion on this case was preceded by Dr. Oliphant's showing the following card specimen:—

III.—CARD SPECIMEN: UTERUS FROM PATIENT WHO DIED OF PERITONITIS FOUR AND A HALF DAYS AFTER CÆSAREAN SECTION.

BY DR. OLIPHANT.

Dr. Oliphant stated that in his case also the centre of infection had seemed to be the stitches. The uterine wound had been found gaping.

Dr Hector Cameron could not speak of the *technique* of the operation in question, but there were one or two points to which he might refer; and first, as regards silk sutures, *Dr. Murdoch Cameron* had seemed to think that a silk suture might separate and come away, and everything be aseptic. When silk sutures did thus separate (as often happened in abdominal cases), he thought it was because the silk had contained some septic matter, and a small abscess had accordingly resulted. Then, as to the length of time required for the absorption of silk sutures, he remembered the first occasion upon which *Lister* tied an artery with silk on the plan of cutting the ends short, and leaving the ligature *in situ*. The patient had died a year afterwards of disease elsewhere, and the ligature had been found not yet to have disappeared.

Dr. Hector Cameron would not have thought *à priori* that a silk ligature would have permanently obliterated the Fallopian tube. There was no analogy between that tube and an artery. It was fashionable now-a-days, when tying an artery, not to try to sever the inner and middle coats; but he himself always did try to do so, and when that was done, the reparatory process which followed was almost certain to obliterate the artery at the point. There was no analogy to this in the case of the Fallopian tube, and it had always struck him that the process which *Dr. Murdoch Cameron* had described for his last case (double ligature and dividing between) was the right one. He (*Dr. Hector Cameron*) thought that it ought to ensure success.

With regard to the needles, he was sorry to see *Dr. Murdoch Cameron* joining the army of transcendental antisepticians! If one kept needles in a 5 per cent solution of carbolic acid for half an hour before operating, he could use them as often as he liked. The surgeon could not part with his hands, and they were much more likely to introduce sepsis than needles were. One of the great questions in ordinary surgery at present was that of "stitch-abscess." Sutures, and especially

those through the skin, would often separate, with the formation of a small quantity of pus, because of some infection in the track of the stitch. It was found to be very difficult to render the skin aseptic.

Dr. W. L. Reid would have thought it very probable that a silk ligature, applied to the Fallopian tube and pulled to such an extent as to almost certainly excite some inflammatory action, would have been almost certain to result in blocking the tube. That, at any rate, seemed to be the rule, and the present case to illustrate merely the exception. He thought that *Dr. Murdoch Cameron's* explanation was probably the right one—that that particular ligature had not been pulled so tightly as the others.

As to silk sutures, *Dr. Reid* had a very strong opinion as to the difficulty of keeping them aseptic when they came to the skin or a mucous membrane, and he had bestowed much attention to the subject. For example, in *Emmet's* operation, he thought that an ordinary silk suture was something to be sedulously avoided. He had adopted the suggestion made by *Skene*, of Brooklyn, and had the silk boiled in wax. As it was withdrawn from the wax, and the wax was cooling down, he had it then put into a 5 per cent solution of carbolic acid. Sutures of such silk were less often followed by suppuration, even when used in the vagina. The explanation seemed to be that the silk had lost its power of absorbing, and had all the advantages of silver wire without its disadvantage—viz., of breaking the surrounding tissue.

Dr. Murdoch Cameron, in reply, claimed to take only necessary antiseptic precautions, and referred to the special dangers of introducing sepsis by the hands and by instruments. It was remarkable that, in cases of peritonitis following operations, such as the present, pain might be entirely absent; in *Dr. Oliphant's* case there had not even been any rise of temperature. *Dr. Murdoch Cameron* preferred silk which had been prepared in spirit. When anything went wrong, he feared he had drawn the sutures too tight, or that the patient had moved and displaced the dressings. He now applied strips of sticking plaster, to prevent any such displacement.

If a Fallopian tube were ligatured tightly enough, he was sure that proceeding ought to be efficacious; but the plan of ligaturing in two places and dividing between would make matters more secure. He would be glad to have *Dr. Hector Cameron's* opinion about the removal of the ovaries.

Dr. Hector Cameron said that he had no experience on that subject.

IV.—SPECIMENS FROM A CASE OF TUBERCULAR PERICARDITIS
WITH DOUBLE PLEURISY AND LARGE EFFUSION—PULSUS
PARADOXUS.

BY DR. SAMSON GEMMELL.

Specimens, naked-eye and microscopic, were shown from this case. Dr. Gemmell's report and his remarks upon it will be found in full in the original article at p. 81.

Dr. Joseph Coats said that the case was a most interesting one, not only from the clinical, but also from the pathological point of view. Dr. Gemmell had referred to certain clinical aspects in which it was of special interest. He might now refer, in the first place, to the question of the origin of the tubercular pericarditis. There had been in the patient's chest for many years a smouldering tuberculosis, for in the mediastinum they had found a number of glands, not all of them in a state of active tuberculosis. Many of them, indeed, were evidently now less in size than they had been, for they were shrunken as well as calcified. There was, however, active tuberculosis in some of them, and they must be regarded as the origin of the tuberculosis of the pericardium. This was interesting, as confirming Weigert's views on the subject. Those glands had probably been first affected in this patient's childhood. Tubercular affection of glands in this situation and in the mesentery was a common occurrence in childhood. Dr. Coats was convinced of this by frequently finding calcareous masses in those glands while making *post-mortem* examinations on adult subjects. In the present case the tuberculosis had smouldered on, and lately had led to the disease in the pericardium and pleuræ. In connection with the old focus in those glands, it was interesting to find a lesion of the œsophagus—traction diverticula. The glands had been adherent to the œsophagus over a limited area, and in shrinking had drawn its wall forwards. There were two such diverticula in the present case, one of them being particularly well marked. A diverticulum originating in this way not seldom led to abscess. Of this there was an illustration in the Western Infirmary Museum. In such cases the symptomatology was likely to be very obscure, just as it had been in the present instance.

The very extensive exudation in the pleural cavities was partly to be explained by the extension of the tuberculosis from the pericardium to the pleuræ, but that extension had been slight, and he did not know that it would account

for the whole of the exudation. The obstruction of the mediastinal lymphatic glands, which he presumed were in connection with the pleural sacs, would, he thought, have diminished the absorptive power of the pleuræ, and that would tend to exudation.

With regard to what had been said about the *pulsus paradoxus*, he would draw attention to the fact that the pericardium had been found adherent to the posterior aspect of the sternum, to the lung on either side, and posteriorly to the mediastinal structures, and that on dissecting the parts the aorta in the posterior aspects of the arch had been found firmly adherent to the glandular mass. The pericardium, glands, and aorta formed one large mass, and during inspiration the raising of the sternum must have led to there being traction on the aorta. There had also been adhesion of the superior vena cava to the glandular mass.

Dr. Gemmell had referred to the great thickening of the pericardium. That had been due to tubercular and inflammatory new-formation, and over the left ventricle measured so much as 2.5 cm. Under the microscope they might see stained some of the fibrin remaining, and on either side of it the tubercular tissue in the parietal and visceral layers. The tuberculosis had not penetrated beneath the pericardium, the sub-pericardial adipose tissue being free.

Mr. Clark referred to the interest of the case. It was not to be wondered at that diagnosis had been difficult when they saw the conditions revealed at the *post-mortem*. He asked if there had been any tubercular lesions found in the lungs.

Dr. Coats replied that there had been nothing but what was secondary to the pleural condition.

V.—SECTIONS FROM A CASE OF MEDIASTINAL TUMOUR SECONDARY TO CANCER AT BOTH ORIFICES OF THE STOMACH.

BY DR. WILLIAM WATSON.

The specimens shown were obtained from the body of a man, æt. 52. The symptoms had been of eight weeks' duration. Intrathoracic tumour had been diagnosed during life.

After death two ulcers were found on the small curvature of the stomach—one at the pyloric and one at the cardiac end. Cancerous foci were found in the stomach wall between the two ulcers. The new growth had invaded the diaphragm, and so passed to the mediastinum on the right side. Here the lymphatics were involved, and the root of the right lung

was also affected. There was abundant pleural effusion, and collapse of the lung on the right side. One nodule was found in the liver.

On the pleural surface of the right lung were seen some white elevated streaks, which appeared to be blood-vessels. Microscopic examination showed them to be vessels of some kind. The outer and inner coats were much thicker than normal, the middle thinner. The former contained numerous cells, which had the appearance of epithelial cells, so that probably the cancer had extended by this route.

The following sections were shown under the microscope :—
Section showing cancer of pylorus; section showing cancer of diaphragm; section showing presence of epithelial cells in the vessel walls of the visceral pleura.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1894-95.

MEETING III.—10TH DECEMBER, 1894.

The President, DR. KNOX, in the Chair.

I.—SPECIMEN OF NÆVUS BECOMING SARCOMATOUS.

BY PROFESSOR GEORGE BUCHANAN.

Professor Buchanan showed this specimen and also a photograph which had been taken before operation. He read the following clinical report of the case¹:—

“T. C., æt. 45, was admitted to the Western Infirmary on 7th November, 1894, complaining of a growth on the forearm which has been present as far back as he can remember, although it is only within recent years that it has increased much in size.

“His family history and history as regards past illnesses are very good.

“When about 10 years of age he first noticed a little swelling on his arm. It was then only of the size of a pea, and he states that by pressing on it with his finger it could

¹ The clinical reports and photographs relating to this and the following case were prepared by Dr. Cuthbert Nairn, Professor Buchanan's house-surgeon.

be made to disappear. When 21 years of age it was only a little bigger, but from that time on it increased gradually in size, more rapidly during the last four or five years, and quite perceptibly since May last. He states that for some time back his general health has not been so good, and that his body has lost considerably in weight.

"On examination, a rounded tumour of the size of, and with much the same colour and consistence as, a black Hamburg grape, is seen on the front of the left forearm, a little above the middle. It is fixed to the arm by a slightly constricted neck or pedicle, and this can be felt to penetrate pretty deeply into the tissues, although the tumour as a whole can be moved about with comparative freedom. The colour is of a dark blue tint. It is soft to the touch, and on raising the arm and pressing on it, it can be emptied to some extent. It is tender to the touch, but apart from this it causes no pain, even although the muscles of the arm are used freely.

"On 13th November, 1894, the tumour was excised by Professor Buchanan."

Dr. R. M. Buchanan, who had examined the tumour after removal, reported as follows:—

"The specimen submitted is a nipple-shaped tumour mass about the size of a walnut. It is covered by skin having a wrinkled, glazed appearance. Median section displays a tissue of fleshy colour and consistence, with many vascular channels cut across.

"The microscope reveals a tissue consisting of blood channels with thin walls formed by spindle cells. The tissue between these channels is uniformly infiltrated by round cells, and frequently their walls are obscured by the infiltration."

Sections were shown under the microscope.

Dr. Knox had seen one example of the condition illustrated by Professor Buchanan's case, and it had resembled it very much in many of its features. In his (*Dr. Knox's*) case the tumour had existed still longer, and had become more pedunculated. When cut into, the tissue had been just like a sponge. As Professor Buchanan had said, the condition was not a very common one.

Mr. Maylard referred to a similar case which had come under his notice some months previously. There was this difference, that in his case the nævoid growth was deeper. His patient was a seaman, and above the internal condyle there had been noticed a soft, puffy swelling. When this had

been cut down upon, they had found a nævoid structure, quite cavernous, so that, when they had incised it and tried to remove it, it had seemed to collapse into shreddy tissue. It had been deep in the muscles. They had thought that they had removed it completely, but in two months or so the patient had returned, and operation had had to be repeated. On incision it had then been found that the growth had extended to the bone, and actually into the bone, as well as infiltrated the muscles extensively. It had again been removed very thoroughly. Mr. Maylard had not seen the patient since, but he thought that if there was any further return they would have to amputate.

If he might refer to the pathological aspect of the subject, he would raise a question as to the probability of the tumour's having been a nævus which had become sarcomatous. A sarcoma, or the tissue forming it, tended naturally to develop into a normal structure, and they had thus sarcomata with development of bone, of cartilage, and of fibrous tissue. Might a sarcoma not similarly go to form vascular tissue? A sarcoma seemed to have this tendency to form normal structures until it "ran loose" and became definitely malignant.

Dr. Newman thought that the term "nævoid sarcoma" (which had appeared on the billet) was probably a perfectly legitimate one in so far that a sarcoma had a tendency to develop vascular channels in its substance. Any one who had studied these sarcomatous growths must have seen that they had no proper blood channels, and that the blood might push its way in them in every direction. He had had sarcomatous growths submitted to him which were so rich in blood that they had been mistaken for aneurysms. He could understand this condition to go further. Fibrillation usually took place round those blood channels, the cells getting pressed upon, and flattened, and united together as they were not elsewhere in the tumour. Those channels might be unduly dilated and become so numerous, that it would be difficult to say when nævoid structure ended and sarcomatous began.

Professor Buchanan, in reply, said that he had called the tumour a nævoid sarcoma because he believed that it had been a nævus for twenty years, and that it had then begun to grow, the tissue among the vessels becoming sarcomatous. The blood-channels had been well-formed vessels whose mouths could be seen with the naked eye.

II.—SPECIMEN OF “PARAFFIN” EPITHELIOMA.

BY PROFESSOR GEORGE BUCHANAN.

Professor Buchanan showed the amputated leg in this case, as also the tumour removed from the arm, and photographs of the affected limbs taken before operation. The clinical report, which he read, is as follows:—

“J. T., æt., 52, was admitted to the Western Infirmary on 30th November, 1894, suffering from a large growth on the inside of the left ankle, and a smaller one on the arm at the bend of the elbow.

“Patient's family history is of no value.

“About two and a half years ago, a small swelling appeared on the inner surface of the left ankle, which the patient took at first to be a wart; but it got gradually bigger, and was accompanied by a good deal of pain. Nine or ten months ago, a similar swelling appeared on the left arm, and this also increased in size, but was not accompanied by the same amount of pain.

“The patient has been for twenty-five years a worker in the Pumpherstons Oil Work, and while performing his duties has had to stand for long hours with his clothes soaked in crude paraffin. This appears to have been very irritating to the skin, often causing pustules and sores to appear.

“On examination, a large warty growth is seen over the inner malleolus of the left foot. It is somewhat circular in outline, with a diameter of about 4 inches. The surface is rough and warty-looking, the skin having become ulcerated and given rise to a very foul-smelling discharge. The edges are irregular and rolled over.

“The femoral glands are distinctly enlarged, but not hard, and it is doubtful whether the enlargement may not be due to simple irritation.

“The tumour on the arm is of exactly the same nature, but smaller in size. It has quite a close resemblance to a small cauliflower. The edges are very characteristic of an epithelioma.

“4th December, 1894.—Carden's amputation of the leg was performed, and the tumour on the arm excised by Professor Buchanan.

“Since the operation the femoral glands have become considerably reduced in size.”

Dr. L. R. Sutherland submitted the following report of the pathological examination :—

“Left lower extremity, amputated above the knee, is submitted for examination. Occupying the skin of the inner aspect of the ankle is a massive growth measuring 15 cm. from before backwards, 11 cm. from above downwards, and projecting from the surface for a distance of from 2 to 3 cm. It is situated over the internal malleolus, extends across the middle line behind, and reaches downwards to within 4 cm. of the level of the sole. It overhangs its base posteriorly, where its surface and edges are irregularly nodulated, while anteriorly its edge is more uniform, and gradually shelves down to the skin level. At various points of the surface a thick opaque-yellowish fluid can be expressed. The growth is firmly anchored to the underlying tibia, but moves tolerably freely on the fibula. On section, the dull, white, firm tissue of which it is composed shows numerous well-defined cyst-like areas of softening.

“The skin around the mass is the seat of numerous cicatrices, the largest measuring 5×2.5 cm. Most of these show peripheral pigmentation. In addition, the skin shows a less obvious generalised pigmentation. Projecting here and there from the surface of the thus altered skin of both leg and foot are numerous firm white papular or papilliform elevations, varying in size from a millet seed to a small pea.

“The popliteal gland is not markedly increased in size, but its capsule is firmly adherent to the sheath of the popliteal vessels.

“Separately submitted is an elliptical portion of slightly pigmented skin, showing on its surface a prominent outgrowth of an irregularly oval outline, measuring 6.5 cm. in greatest length, by 5.5 cm. in greatest breadth. This mass, which projects for a distance of 1.3 cm. on an average, overhangs its broad base, and shows a well defined rounded margin. Its surface generally presents a cauliflower-like appearance, although at parts it has a more definitely papillated character.

“Both growths, as the naked eye appearance would lead one to infer, when examined microscopically show typically the structure of epitheliomata. In the larger there is abundant evidence of fatty degeneration. The nodules on the skin around the larger growth have the structure of warts. There is a marked increase of the superficial layers of the epidermis. The interpapillary processes are exaggerated as contrasted with those of the skin in the vicinity, but nowhere do they

lose their basement membrane or show any tendency to penetrate the underlying derma. The tissues of the corion are free from any round-celled infiltration. Within the cells of the malpighian layer there are numerous clear "spaces" of oval or circular outline which displace and distort the nuclei. These are present singly in almost every cell at the base of the outgrowth, and may also be seen here and there in the corresponding cells of the surrounding skin.

"The gland removed from the popliteal space shows no evidence of cancerous involvement."

After commenting on the condition of the skin around the larger growth, and particularly on the presence of the wart-like protuberances, which he regarded as indicating very probably the mode of origin of the growth, Dr. Sutherland directed attention to the "spaces" met with in the epithelium of the rete Malpighii. These he was inclined to regard as similar to the vacuoles described by D'Arcy Power as occurring in epithelium which has been subjected experimentally to irritation. Considering the size, duration, and character of the growth on the leg, the absence of glandular involvement was interesting. Dr. Sutherland considered that the case was to be relegated to the category of cancers which developed on an irritated skin, and to be ranked with those which develop as the result of the action of soot, tar, asphalt, &c. He mentioned in this connection the occurrence of primary cancer in multiple foci in cases of chronic senile seborrhœa, and late in the course of xeroderma pigmentosum.

Sections were shown under the microscope.

Dr. Knox referred to a similar case which had been under his care in the Western Infirmary. The part affected had been a more common situation—viz., the scrotum, and they had thus had a substitute for the more usual "chimney-sweepers' cancer." The patient had come under Dr. Knox's notice two years afterwards in Dr. Alexander Robertson's wards in the Royal Infirmary. He had then an epitheliomatous stricture of the rectum, but there had been no return in the scrotum, and the cicatrix there had been perfectly sound. He had been rather puzzled to account for this secondary occurrence of epithelioma in the rectum, or recurrence, as he had then felt it must be called. Professor Buchanan's case, however, showed separate epitheliomatous

foci in situations as far apart as the ankle and the elbow, and thus illustrated the fact that among paraffin workers they might have more than one epitheliomatous focus progressing at the same or almost the same time. In his (Dr. Knox's) case the epithelioma of the rectum must have been going on for some time before it had caused the stricture for which the patient had sought admission to hospital. Professor Buchanan's specimens were both very typical.

Mr. Maynard drew attention to a point which had been mentioned by Dr. Sutherland as to the growth not tending to extend deeply like a typical epithelioma. He thought that this must be the reason why the lymphatic glandular swelling had been merely an inflammatory one, and why the popliteal gland examined by Dr. Sutherland had been found to be not epitheliomatous. It would be interesting to know if Professor Buchanan, from his experience, could say if it was possible to have such an extensive epitheliomatous growth of the ordinary type without lymphatic involvement.

Dr. Newman had not seen any similar case in his own practice, but had frequent experience of the irritating effects of chrome yellow. Among chrome workers one often saw perforation of the nasal septum, and there developed on that a malignant growth. This occurrence was very frequent, probably because chrome yellow was more irritating than paraffin. The most irritating forms of paraffin were the higher paraffins, as might be judged from the violent results following their use by miners and others as liniments for the rheumatic affections to which they were so liable. He would ask Professor Buchanan if he could say what kinds of paraffin this patient had been working in. The lower paraffins were exceptionally non-irritating.

Professor Buchanan replied that the patient had had to work in crude paraffin.

III.—PATIENT SUFFERING FROM ADDISON'S DISEASE.

BY PROFESSOR M'CALL ANDERSON.

Professor M'Call Anderson showed this patient, and indicated the leading features in her case. A detailed report of her illness appears at p. 88, under the title of "Clinical Memoranda."

Dr. Middleton was much interested in seeing the patient, as cases of Addison's disease were by no means common. He wished to ask whether Dr. M'Call Anderson had tried the

treatment, recently adopted, by extract of the suprarenal capsules or by thyroid preparations. He would not care himself to try them. Recently there had been sent into his wards in the Royal Infirmary a gentleman who had fainted in the Exchange. The case had been regarded by the resident assistant as one of apoplexy, and croton oil had been administered—certainly not to the patient's advantage, as he was really suffering from Addison's disease. His medical attendant had come to assist in his removal home, and had been alarmed at the occurrence of the syncope, because, in the course of treatment, he had been giving him at one time extract of suprarenal capsule, and at another a thyroid preparation, and he had feared that the syncope might have been thus induced. A few days later Dr. Middleton had noticed the patient's death in the newspapers; another attack of syncope had occurred and cut him off.

Dr. R. M. Buchanan said that he supposed that treatment with extracts of the suprarenal capsules might be of advantage in the earlier stages of the disease, while as yet only the suprarenals were implicated, but that, as a matter of fact, the tubercular process came later on to involve the neighbouring nerves—the solar plexus and the splanchnics—by causing inflammatory thickening of tissue. He thought that it was this involvement of solar plexus and splanchnic nerves that led to the vomiting, diarrhoea, and cardiac symptoms from which such patients suffered. If the disease had reached that stage, treatment by extracts of the suprarenal capsules would probably ameliorate the condition as regards the function of those glands, but could not overtake the results of the nervous changes, which to a large extent led to the death of the patient.

Dr. McCall Anderson had never used the extract of suprarenal capsules in the treatment of Addison's disease—(1) because in any case in which he had known of its being tried it had not been a success, and (2) for the reason which had just been stated by Dr. R. M. Buchanan. In regard to the latter point he would refer to the drawings, illustrating the nervous involvement, which appeared in his *Treatise on Diseases of the Skin*, at p. 36 of the second edition (1894). He thought that the treatment suitable for cases of Addison's disease was by anti-strumous remedies. Accordingly he usually prescribed cod liver oil, with perhaps counter-irritation over the region of the suprarenal capsules. They might thus keep the disease from spreading to the solar

plexus and the splanchnics, or arrest it in those nervous structures if it had already begun there. Such treatment had been tried in the present case, but unfortunately the patient had been unable to take the cod liver oil, and they had had to be content with malt extract. Perhaps that was the reason of her unsatisfactory progress.

IV.—PATIENT SUFFERING FROM AMYTROPHIC LATERAL SCLEROSIS.

BY PROFESSOR M'CALL ANDERSON.

Professor M'Call Anderson sketched the usual progress of the symptoms in this comparatively rare form of nervous disease, and, in showing the patient, demonstrated the atrophy of certain muscles in the upper limbs and the exaggerated reflexes obtained not only from many of the arm muscles, but in both lower limbs. The details of the case will be found in his "Clinical Memoranda," at p. 93 of the present number of this *Journal*.

Dr. Wood Smith asked if there had been any affection of the bladder, and was answered in the negative.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1894-95.

MEETING III.—28TH NOVEMBER, 1894.

The President, DR. G. A. TURNER, in the Chair.

I.—SPECIMEN OF MULTILOCULAR CYST ATTACHED TO MESENTERY; QUERY, TRANSPLANTED OVARIAN?¹

BY PROFESSOR GEORGE BUCHANAN.

Professor George Buchanan read the report of a case of multilocular cyst (ovarian?) attached to and nourished by the mesentery, and quite unconnected with the uterus or its

¹ This case is published in full in the *British Medical Journal*, 19th January, 1895, p. 122.

appendages. The cyst was shown and several microscopic sections of its walls.

The patient was married, aged 40; 11-para; last child in October, 1893. She nursed up to the time of admission, and had not menstruated since the confinement. She had noticed the swelling some weeks before. The abdomen was distended by a globular tumour, most prominent at the umbilicus. It seemed to be solid at parts, and was slightly movable. The uterus was normal. It was diagnosed as a multilocular cyst. The abdomen was opened, the tumour tapped, and 280 oz. oily greenish-yellow fluid drawn off. On lifting it out, the mesentery and a loop of adherent bowel came along with it. When the adhesions were separated, no pedicle was found, nor any indication of there having been one. The uterus and both ovaries were felt to be normal, and there was no indication of it ever having been attached to any of them. The patient made a good recovery.

Pathological Report.—"The cyst wall consisted of white fibrous tissue, with many small cysts in the interior, while flocculent masses and a large amount of cholesterine lined the interior."

Professor Buchanan remarked it was thirty years since he had performed the first successful ovariectomy in Glasgow. He showed the dry cyst—a large parovarian one. He had never seen or heard of a case similar to the one he had just described. It looked like an ovarian cyst, but there was no trace of a pedicle. In the cases of free ovarian tumours that had been described, a stump of a pedicle had been found on the tumour and broad ligament. He advanced the following theory of origin. He supposed a Graafian follicle on the surface had become cystic, and had grown outwards without becoming incorporated with the ovary. After a time it had become adherent to the mesentery, and the bowels, by their peristaltic movements, had drawn it away, until separation had taken place from the ovary, which had fallen back into its normal position. The mesentery would supply the tumour with blood through the vessels in the adhesions.

Dr. Sutherland said he had examined the cyst microscopically. The walls were essentially fibrous, with considerable fat from the mesentery. There was no endothelial lining, and nothing indicative of an ovarian origin. From a histological standpoint its origin could not be determined.

Dr. Sloan and *Dr. Reid* thought *Dr. Buchanan's* explanation a not improbable one.

Professor Cameron thought it might have originated in one of the mesenteric glands.

The President said its origin must remain in doubt. The explanation given was feasible. *Sir Spencer Wells* had reported a case of mesenteric cyst in a man.

Professor Buchanan replied.

II.—SPECIMENS OF MOLES.

BY PROFESSOR MURDOCH CAMERON.

Professor Cameron showed a vesicular mole, and also a fleshy mole with an atrophied foetus attached.

III.—CASE OF CONGENITAL DORSAL TUMOUR; QUERY, SPINA BIFIDA OCCULTA.

BY DR. LINDSAY.

Dr. Lindsay exhibited a child 5 months old—a case of congenital dorsal tumour (spina bifida occulta?). He also showed a model of the condition at birth. There was a small tumour to the right of the spine, in the lumbar region. It was very suggestive of a fatty tumour, but from the lower part a sac filled with fluid protruded from a small cup-shaped depression of granulation tissue. The sac withered and fell off in a day or two. He thought it had been a spinal meningocele which had burst through the skin, and the torn edges had contracted round the sac and cut it off. In rare cases not only the skin, but the dura mater, bursts. In this one probably only the skin had given way. The tumour had grown a little since. The scar was still seen, and there was also a superficial nævus on the side of the tumour. No cleft could be felt in the spine.

Professor Cameron doubted its being a spina bifida. He thought it felt like a fatty tumour with a nævus in it.

Dr. Howie related a case of spina bifida which he had seen, in which the sac had burst during the birth of the child. The child died on the twelfth day.

Drs. Reid, Sloan, Richmond, and the *President* also spoke.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By T. K. MONRO, M.A., M.B.

Peristaltic Movements of the Stomach in Man.—Whilst normally the human stomach is engaged in active movement only during the digestive process, it may, under certain pathological conditions, display more constant rhythmic movements, which are seen in the form of waves passing from the cardiac towards the pyloric end, but occasionally in the reverse direction. This peristalsis has been attributed to stenosis of the pylorus; but the acceptance of this view without qualification is made difficult by the fact that, in numerous cases of pyloric obstruction, there are no such visible movements, while, on the other hand, peristalsis may occur in the absence of obstruction from stenosis.

The authors mention the case of a woman, æt. 64, the subject of marked peristaltic movements of the stomach. She suffered from cancer which was supposed to be of rapid growth, and which quickly led to stenosis of the pylorus. The stomach, being thus suddenly, as they believe, embarrassed in its movements, got into a state of tetanus in its endeavour to overcome the obstruction, and its contractions ceased only when it became exhausted. The authors admit that further observations are desirable.—(Hanot and Meunier in *Gaz. Méd. de Paris*, 27th October, 1894.)

The Question of the Specific Origin of the Pneumonia of Gouty Subjects.—Grube instances two cases of pneumonia in individuals who were without doubt gouty, and who, indeed, were continually presenting irregular symptoms of this diathesis. In both cases the pulmonary inflammation set in without obvious cause, affected the left side, was of limited extent, and completed its course in two or three days, without any considerable elevation of temperature. It was replaced, in the one case, by a typical paroxysm of gout, and, in the other, by severe pains in the calves. In view of the powerful toxic properties which, as different writers have shown, is possessed by uric acid, Grube is disposed to attribute to an excess of this agent in the organism the responsibility for pneumonia occurring in connection with gout.—(Quoted in *Gaz. Méd. de Paris*, 17th November, 1894.)

Mechanism of Death from Cocaine.—Maurel, of Toulouse, finds that cocaine acts upon the leucocytes and the small blood-vessels. The leucocytes increase in volume, assume a spherical shape, and cease to keep to the parietes of the vessels. The small vessels contract, and thus lead to thrombosis and embolism. Pulmonary embolism is particularly apt to occur. Small doses of cocaine are sufficient to influence the leucocytes in a marked degree, and this is sufficient to explain the serious consequences that have followed the absorption of slight doses of a concentrated solution. The mechanism of death appears to differ according to the strength of the solution and the mode of introduction into the system. When the drug is injected subcutaneously or into the veins, it paralyzes the leucocytes at the seat of injection; these form emboli which are the immediate cause of death. The danger is from pulmonary embolism. Injection into systemic arteries is not nearly so dangerous. Maurel has found that more than 5 grammes per kilogramme of bodyweight can be injected into the femoral artery of a rabbit without causing death.—(*Gaz. Méd. de Paris*, 17th November, 1894.)

The Primary Lesion in Tabes.—Nageotte, under the direction of Raymond, has recently studied this question in four cases—one of pure tabes, one of pure general paralysis, and two in which general paralysis and early tabes were associated. He concludes that (1) in tabes there is a perineuritis of the nerve-roots between the ganglia and the situation where they enter the arachnoid; fibrous change takes place with degeneration of the nerve fibres; (2) in tabes, the anterior nerve-roots are likewise invaded, but their nerve-tubes are more resistant to the effects of the interstitial process than are those of the posterior roots; nevertheless, this sometimes does give rise to the symptoms of a motor type of peripheral neuritis; (3) in tabes combined with general paralysis, the lesion of the nerve-roots does not differ from that described as obtaining in pure tabes; (4) the radicular lesion of tabes is of the same order as the cerebral lesion of progressive general paralysis, and there is nothing in histology to contradict the opinion that this lesion is of syphilitic origin.—(*Gaz. Méd. de Paris*, 17th November, 1894.)

Circumscribed Peritonitis due to Pneumococci.—Brault (d'Alger) records the case of a patient, æt. 35, who, after pneumonia, suffered from retention of urine and pain in the right iliac fossa. A dull, immovable, fluctuating swelling developed in the right lower half of the abdomen and compressed the bladder. The temperature was 100·4°. No evidence of diseased bone could be found, and a diagnosis was made of encysted suppurative peritonitis, originating in the appendix. Laparotomy was performed, and a pouch, which was thus opened, gave exit to foul-smelling pus. Thick false membranes concealed the intestine, and the appendix could not be discovered. Recovery took place rapidly. Examination of the pus showed numerous micrococci, some single and some in pairs, surrounded by a capsule, like the pneumococcus of Fraenkel; but cultivations and inoculations were not made. This last fact and the failure to find the appendix leave a regrettable gap in the report of the case. For peritonitis due to infection by pneumococci, though already recorded on rare occasions as having been seen in children, has not hitherto been met with in adults. It is possible, however, that an abscess originating in this way may have been confounded with one due to appendicitis.—(*Gaz. Méd. de Paris*, 6th October, 1894.)

Tuberculosis among Cows in France.—M. Alexandre, in a report on the subject of tuberculosis in byres in the Department of the Seine, gives some interesting figures. He found the disease in 70 byres. Of 20,000 cows, only 68 were recognised as tuberculous, a proportion, namely, of 3·4 per 1,000. M. Alexandre therefore holds to his opinion that the consumption of the flesh and milk of our domestic animals is not the cause of the terrible mortality from tuberculosis among mankind. It is important, he says, that this once accepted belief be thoroughly rooted out of our minds. He urges that modifications of the existing laws ought to be made at once, so as to make compulsory the employment of the tuberculin test on all animals of a byre in which a case of tuberculosis has been proved to exist.—(*Le Progrès Médical*, 29th September, 1894.)

Syphilis and General Paralysis.—Fournier remarks that we shall not finally settle the relationship between these two diseases until we have complete answers to the following four questions:—(1) Is there a clinical entity due to syphilis which is worthy of the designation of general syphilitic pseudo-paralysis? (2) Can true general paralysis, so-called, be due to syphilis; and, if so, how often is it caused by syphilis? (3) Is true general paralysis, as a consequence of syphilis, of syphilitic nature, or merely of syphilitic origin? (4) Is true general paralysis, as a consequence of syphilis, distinguishable by any clinical, anatomical, or other characteristic from general paralysis of a different origin?

In the present state of our knowledge, we may answer the first question affirmatively. We know, as a matter of fact, that syphilis, when it attacks

the brain, sometimes gives rise to a set of symptoms like those of general paralysis, so that the condition may be termed general pseudo-paralysis. But this is simply a special form of cerebral syphilis.

With regard to the second question, there are numerous arguments which may be urged in favour of the view that there is a pathogenic connection between the two diseases.

The first and most important of these rests upon the great frequency of syphilitic antecedents in general paralysis. This has been variously estimated by recent statisticians at from 50 to 92 per cent. Moreover, general paralysis in the female, which is an exceptional occurrence, is almost confined to women of irregular life, in whom syphilis is rarely wanting; while, on the other hand, general paralysis is seldom seen in the country, or among ecclesiastics or members of religious orders. Again, a past history of syphilis is not so common in members of the general community as it is among general paralytics. This fact is a proof that syphilis is a factor in the etiology of general paralysis. The observation is due to M. Régis, who found that of fourteen children suffering from general paralysis, seven or eight were syphilitic. This is an argument that cannot well be answered by those who object to the syphilitic origin of the disease in question. Finally, general paralysis and tabes are often associated in one patient, and it is now known that tabes is a sequel of syphilis. It is a natural conclusion, therefore, that general paralysis is a sequel of syphilis.

With regard to the third question, opinions differ. Some writers think that syphilis is the exciting cause which operates upon a soil prepared by a neurotic heredity, alcoholism, and other excesses. Others say that syphilis prepares the soil, and that other factors enter in as the exciting causes. Others, again, hold that general paralysis, like tabes, is due to a toxine evolved by a syphilitic microbe. M. Fournier thinks it is still premature to fix upon any one of these theories as the correct one, but in the meantime he classes general paralysis with the parasymphilitic affections—that is, with those which are connected with syphilis merely in etiology, and not in essence. The characters that distinguish parasymphilitic affections from those that are frankly specific are two: (1) they do not necessarily or exclusively depend upon syphilis for their causation; and (2) they are not influenced by mercury or iodide of potassium.

M. Fournier says that the answer to the fourth question will only be elaborated by the combined efforts of alienists, morbid anatomists, and syphilographers.—(*Gaz. Méd. de Paris*, 3rd November, 1894.)

Hereditary Tuberculosis and Early Infection.—Instances of direct infection of the fetus in uterus, from a tuberculous mother, are on record, but the number is as yet small. Such observations have been made by Charrin, Merkel, Berti, Rindfleisch, Aviragnet, Jacobi, Labourand, and a few other writers. Recent literature has made several additions to the list. Cnopf (*Münch. med. Wochenschr.*, 1893, Nos. 39 and 40) records an autopsy upon a child of twelve weeks, born of tuberculous parents, which at birth exhibited atrophy, anasarca, and jaundice. Miliary tuberculosis of both lungs, caseous peribronchitis, caseation of the bronchial glands, and tuberculosis of the spleen were found at the *post-mortem*. Two years later, another infant of the same family, born apparently healthy, died atreptic in the thirty-fifth week after birth. The autopsy revealed caseation of the bronchial glands, purulent bronchitis, intestinal tuberculosis, and caseation of the mesenteric glands. Another case, dying at the age of sixty-three weeks, showed extensive ravages in the lungs that must have begun at a very early date. The lungs were filled with large cavities, one of which was the size of a man's fist. The bronchial glands, spleen, mesenteric glands, and intestinal mucous membrane were very extensively diseased.

Two cases recorded by Goldschmidt (*Münch. med. Wochenschr.*, 1893, No. 52) may be added, and are extremely interesting as showing the probable course of infection directly from the placenta. The first, an infant of fifteen months, whose parents were tuberculous, was received into the hospital for a

cough of long duration, with advanced cachexia. Autopsy showed tuberculosis of the lungs, and of the bronchial, mediastinal and mesenteric glands. A nodule containing tubercular bacilli was present at the lower surface of the liver at the point of insertion of the umbilical ligament. The other organs were not diseased. In this case the author believes that the existence of a tubercle at the extremity of the ligament which enclosed the umbilical vein clearly points to infection of the fetus by the blood of the mother, though the possibility of accidental infection after birth by way of the healing umbilicus must cast some doubt upon this view. The second case was very like this one. The child was seven months old, and the lesions found were advanced pulmonary tuberculosis, glandular involvement, tubercular ulceration of the intestine, and a tubercular focus in the liver at the insertion of the umbilical ligament. While the pulmonary disease was more advanced than the hepatic, the author thinks, in consideration of the latter lesion, that this had been the focus of primary infection. Another case is recorded by this writer, in which extensive lesions were found in a child of five weeks, removed from the tuberculous mother within a few hours after birth, the mother dying shortly after. In this case, intra-uterine infection seems most probable.—(*American Journal of the Medical Sciences*, October, 1894.)

Vasomotor Reflexes in some Nervous Conditions.—Hallion and Comte find that the vaso-constrictors do not act in an area which is anæsthetic in consequence of a nerve-lesion. On the other hand, they act normally in hysterical anæsthesia. Vasomotor phenomena remain quite unaffected by the hypnotic state. In syringomyelia, they are feebly developed or quite absent, even in parts where there is no anæsthesia.—(*Deut. Med. Zeit.*, 19th November, 1894.)

SURGERY.

By HENRY RUTHERFURD, M.B.

Congenital and Traumatic (Old Standing) Dislocation of Hip in the Child.—Gibney, of New York, reports unfavourably of operation for this condition. In double dislocation patients, as a rule, learn to balance themselves and walk with a swinging gait comfortably. Pain, however, may come into play suddenly and comparatively late in life. The operation is a severe one (see recent articles in the *Annals of Surgery*, August, 1894), and the result is apt to be a stiff joint with limb in inconvenient position. Corsets may be of advantage in some cases in giving some degree of comfort. They must not be expected to be curative.—(*Annals of Surgery*, December, 1894.)

Mickulicz speaks otherwise on the same subject. Operative procedures such as those of Hoffa and Lorenz are not the only resource; grave in themselves, they are apt to increase the disablement of the patient. Manipulative procedures are also advocated by Schede and Paci. The investigations and operative experiences of Hoffa and Lorenz have shown that the anatomical obstacles to reduction are for the most part secondary; specially this is true of the muscular contractures which have been treated by the knife. The head and neck of the femur are usually of normal shape and direction to begin with. The acetabulum would seem to be frequently at fault at a very early stage. The capsule is slack, and with the weight of the body when the child has begun to walk this condition increases. The best results will be obtained in children who come under treatment before they have learned to walk. Supposing that the head can be brought into contact with the acetabulum, the object of treatment will be to keep it there; this is best done by (1) traction, (2) abduction, and (3) outward rotation of the limb. This Mickulicz effects by

means (1) of a splint, or double trough, in which the child lies for a portion of the day, and (2) by the use of a felt corset, which the child wears at other times, coming down over the ilia and presenting the upward excursions of the head and trochanter. Treatment having been begun under the eye of the surgeon, is carried on for months, or even years, at home by the mother. Mickulicz reports five cases, in three of which complete recovery may be claimed. Ages at commencement of treatment: 10 months, 3½ years, and 4½ years. Duration of treatment: seventeen months, eighteen months, and twelve months.—(*Langenbeck's Archiv.*, Bd. 49, Hft. 2.)

Cancer of the Breast—Operative Procedure and Statistics.

—Halsted, of Baltimore, lays down this rule:—"The pectoralis major, entire or all except its clavicular portion, should be excised in every case of cancer of the breast, because the operator is enabled thereby to remove in one piece all the suspected tissues.

"The suspected tissues should be removed in one piece (1) lest the wound become infected by the division of tissues invaded by the disease, and of lymphatic vessels containing cancer cells, and (2) because shreds or pieces of cancerous tissue might readily be overlooked in a piecemeal extirpation.

"... Now ... we regularly clean out the infraclavicular, and usually the supraclavicular region, and remove a part at least of the pectoralis major."

He calls attention to the hopeless attitude assumed to the disease by members of the profession who had been accustomed to the old procedure, in which the breast only was removed. "The younger Gross did not save one case in his first hundred. Dr. Hayes Agnew stated in a lecture shortly before his death that he operated on breast-cancer solely for the moral effect on the patients."

"Encouraged by rare but positive cures, German surgeons, led by Volkmann, have for many years been earnestly at work on this problem."

Taking Volkmann's standard of three years' immunity as the gauge of radical extirpation, the best results are as follows:—Bergmann, 30.2 per cent.; Billroth, 4.7 per cent.; Fischer, 9.0 per cent.; Gussenbaur, 16.7 per cent.; König, 22.5 per cent.; Küster, 21.5 per cent.; Lücke, 16.2 per cent.; Volkmann, 14.0 per cent.

Of 50 cases operated on by Halsted after the manner set forth—

In 5 details are not obtainable.

In 3 only has there been local recurrence, that is, in the scar, apparent or buried.

In 8 there has been regionary recurrence (skin or supraclavicular glands).

In 34 there has been no recurrence, local or regionary, these dating from 3½ years to two months, so that he is not yet in a position to compare his statistics with those already quoted.

No patient out of the 50 died of the operation.—(*Annals of Surgery*, December, 1894.)

Condition of the Bowel and Contents of the Sac in Strangulated Hernia.

—Tietze reports as follows from observations in Mickulicz's clinic and from experiments on animals:—

1. Bacteria may be present in the fluid at a time before structural alterations have occurred in the bowel wall where, at all events clinically, the bowel would be spoken of as above suspicion.

2. But this condition is not constant, and the bacteria are not present in such numbers as to modify our treatment. Clinically the fluid is to be regarded as sterile at this stage.

3. Not even in every case of gangrene of the bowel does the fluid contain living organism capable of development.

4. Against certain forms of bacteria the fluid of the sac, both in man and other animals, possesses a destructive influence.—(*Langenbeck's Archiv*, Bd. 49, Hft. 1.)

DISEASES OF THE EAR.

BY DR. WALKER DOWNIE.

The Death of Professor Herman von Helmholtz, which occurred 8th September, 1894, at the age of 73, removes one who rendered important services to otology. By his mathematical genius he analysed the third quality of sound, timbre, showing it to be, unlike intensity and pitch, a combination of tones consisting of a fundamental tone and a number of harmonics, which, later on, he was able to demonstrate by the use of his resonators. By means of his siren he was able to accurately determine the number of vibrations of any given sound; and though his name is more closely associated with the ophthalmoscope and the science of ophthalmology, yet aurists owe him much.

On Double Hearing. By Dr. Hans Daas, Christiania.—The cause of double hearing has frequently been discussed. Cases have been reported in which the cause was situated in the middle ear; rupture of the tympanic membrane causing double hearing, which disappeared when the rupture healed—others in which the mischief was in the internal ear, such as from fatigue of the perceptive portion of the auditory apparatus from long-continued use of the telephone; and other cases have been due to central disturbances.

Dr. Hans Daas here reports three cases, in two of which treatment directed to the abnormal state of the middle ear sufficed to remove the disagreeable symptoms of double hearing.—(*Archives of Otology*, October, 1894.)

Intra-Tympanic Massage and Vapours in the Treatment of Chronic Aural Catarrh. By H. V. Würdemann, M.D., Milwaukee.—The author begins by describing the routine treatment of the middle ear and Eustachian tube in chronic dry catarrh, the object of the various procedures adopted being to loosen or break down adhesions and to increase the nutrition of the lining membrane.

He then enumerates measures, especially a combination of massage along with introduction of medicated vapours, which he has found useful in these intractable cases. He uses vibratory massage through the catheter and Eustachian tube by means of a compressed air apparatus, and he interrupts the current of air about every second by compressing the tubes leading to the catheter between the finger and thumb. By this method he thinks that the lining membrane of the Eustachian tube, the drum-head and the ossicles, is gently and thoroughly massaged; that adhesions are broken up, the joints loosened, and the nutrition of the lining membrane increased. The air is medicated, and used at a pressure of from 15 to 25 pounds. The massage is applied daily, for five to ten minutes at each sitting for each ear, and after a time every other day, and the course involves twelve to twenty or more sittings.

Of the medicaments he employs he considers camphor-iodine the best, though he also recommends menthol and thymol combined with camphor. He has long discarded nascent muriate of ammonium.—(*The Journal of the American Medical Society*, October, 1894.)

Surgical Treatment of Chronic Otorrhoea. By C. H. Burnett, M.A., M.D., Philadelphia.—This is a common-sense paper pointing out the necessity for treating such cases on recognised surgical principles. Remove all septic material from the drum-cavity, whether it be in the form of retained secretions, inflammatory new formations, necrosed tissues, or diseased bone. The drainage of the space is improved thereby, and permits of the free

application of antiseptics to the tympanum, by which healing of the mucopariosteal lining is secured.

In all so-called attic suppurations these procedures are absolutely necessary, for in such there is always necrosis of one or more of the ossicles, and the only perforation through which the products of suppuration can escape is in the membrana flaccida. Were excision of necrotic tissue from the drum-cavity more frequently and promptly performed, there would be less need of mastoid and deeper cranial operations.—(*The Journal of the American Medical Society*, October, 1894.)

Books, Pamphlets, &c., Received.

Diseases of the Throat, Nose, and Ear, by P. M. Bride, M.D. Second Edition. Edinburgh and London: Young J. Pentland. 1894.

Infant Feeding by Artificial Means, by S. H. Sadler. With 24 Illustrations. London: The Scientific Press. 1895. (5s.)

Spinal Curvature and Awkward Deportment, by Dr. George Müller, English Edition by Richard Greene, F.R.C.P. Ed., with 21 Illustrations. London: The Scientific Press. 1894. (2s. 6d.)

Wintering in Egypt, by Arthur J. M. Bentley, M.D., and Rev. C. G. Griffinhoofe, M.D. London: Simpkin, Marshall, Hamilton, Kent & Co. 1894.

Essays on Rural Hygiene, by George Vivian Poore, M.D. Second Edition, with 13 Illustrations. London: Longmans, Green & Co. 1894. (6s. 6d.)

The Galenical Preparations of the British Pharmacopœia, a Handbook for Medical and Therapeutical Students, by C. O. Hawthorne, M.B. London: J. & A. Churchill. 1895. (4s. 6d.)

Notes on Medical Nursing, by the late James Anderson, M.D., edited by Ethel F. Lamport, with Introductory Biographical Notice by Sir Andrew Clark, Bart. Second Edition. London: H. K. Lewis. 1895. (2s. 6d.)

A Handbook of the Diseases of the Eye and their Treatment, by Henry R. Swanzy, A.M., M.B. Fifth Edition, with Illustrations, edited by Louis Werner, M.B., B.Ch. London: H. K. Lewis. 1895. (10s. 6d.)

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THE
GLASGOW MEDICAL JOURNAL.

No. III. MARCH, 1895.

ORIGINAL ARTICLES.

THE SUCCESSFUL PREVENTIVE TREATMENT OF THE
SCOURGE OF ST. KILDA (TETANUS NEONATORUM),
WITH SOME CONSIDERATIONS REGARDING THE
MANAGEMENT OF THE CORD IN THE NEW-BORN
INFANT.¹

By G. A. TURNER, M.D., C.M.

MOST of you are doubtless aware of the great prevalence, for generations back, on the lonely island of St. Kilda, of that terrible disease known as Trismus Nascentium, Tetanus Neonatorum, or Tetanus Infantum; and any method of treatment which has resulted in the diminution, or disappearance, of this "Scourge of St. Kilda," cannot but be of interest to this Society and to the profession generally.

St. Kilda is the most western of the Outer or Western Hebrides, and lies fully 40 miles west of North Uist. Its isolated position in the Atlantic, the fact that the source of food and wealth of its inhabitants is almost entirely the sea birds, which make it literally a "land of feathers," the wonderful feats of the natives in fowling, and their great hospitality to strangers, all have tended to make St. Kilda one of the most interesting of the Western Hebrides.

¹ An address as President of the Glasgow Obstetrical and Gynæcological Society, delivered on Wednesday, 23rd January, 1895.

Another and sadder cause of interest in the past, and one which speaks more loudly than any other to such a Society as this, is the terrible "eight-day sickness" referred to above. The first mention of it, so far as I have been able to discover, is given in a volume published in 1764, a record of observations made during a visit to the island in 1758 by the Rev. Kenneth Macaulay, minister of Ardnamurchan, and missionary to the island from the Society for Propagating Christian Knowledge, a grand-uncle of Lord Macaulay. He states that "the St. Kilda infants are peculiarly subject to an extraordinary kind of sickness. On the fourth or fifth day after their birth many of them give up sucking; on the seventh their gums are so clenched together that it is impossible to get anything down their throats. Soon after this symptom appears they are seized with convulsive fits, and, after struggling against excessive torments till their strength is exhausted, die generally on the eighth day." In the fifth volume of the *British and Foreign Medico-Chirurgical Review* it is stated, on the authority of a gentleman who visited St. Kilda in 1838, that the disease proved fatal to eight out of every ten children born alive.

Dr. John E. Morgan, of Manchester, paid a visit to St. Kilda in 1860, and in an article on "The Diseases of St. Kilda" (*British and Foreign Medico-Chirurgical Review*, January, 1862) he gives the evidence of the "nurse of the isles-women," who herself lost twelve out of fourteen children born alive. In these, and in all the other fatal cases which she had known during a period of thirty years, the children were all "proper bairns" up to the fifth or sixth day after birth.

Mr. George Seton, in his interesting volume, *St. Kilda, Past and Present*,¹ to which I am indebted for many of the details I now bring before you, goes very fully into this subject. He has prepared two tables—one from the register kept by the Rev. Neil Mackenzie during his residence on the island from 1830 to 1844, supplemented by the facts ascertained by him during subsequent visits in 1845 and 1847; and the other from statistics transmitted to the Registrar-General from time to time between 1856 (when St. Kilda was formally constituted a registration district by the Sheriff) till 31st December, 1876.

The first table enumerates the causes of 68 deaths which occurred between 18th July, 1830, and 31st October, 1846, and the second the causes of 64 deaths which took place during the 21 years ending 31st December, 1876. These

¹ *St. Kilda, Past and Present*. By George Seton, Advocate. Black-wood & Son, 1878.

tables show "that in a total mortality of 132, the infant mortality, during the two periods of 16 and 21 years collectively, amounted to 76 cases. Of these 76 deaths, 35 occurred during the 16 years ended 1846, and 41 during the 21 years ended 1876. Taking the population of the island in 1841 (105) as the basis of comparison for the mortality of the earlier period, and the population of 1871 (71) as that for the later period, it would appear that the infant mortality was less during the earlier than during the later period, being in the one case at the annual rate of rather more than 2 per cent (2·08), and in the other exactly $2\frac{1}{2}$ per cent (2·75), or 208 and 275 deaths respectively in a population of 10,000. During the 37 years in question, the number of deaths from eight-day sickness has been remarkably equal—viz., a fraction above 2 deaths annually, ranging from a minimum of 1 to a maximum of 4."

Mr. Seton also quotes from an article in the *Edinburgh Medical Journal* for 1865 by Dr. Arthur Mitchell:—"Out of 125 children, the offspring of the 14 married couples residing on the island in 1860, no less than 84 died within the first fourteen days of life, or, in other words, 67·2 per cent." One of the remarkable results of this abnormal infant mortality, referred to by Dr. Mitchell, is the increased fecundity of the mothers. "One woman in St. Kilda, at the age of 30, has given birth," he says, "to 8 children, of whom 2 live; while two others have borne 14 each, or 28 in all, of whom 24 are in their graves." Mr. Seton adds—"The absence of children about the cottages of the remote island has struck many visitors, a circumstance which naturally recalls the old Gaelic saying that "a house without the cry of bairns is like a farm without kye or sheep."

As to the cause of the prevalence of this disease in St. Kilda many suggestions have been made, the principal ones being the following:—The exposure of the infants to sudden alterations of temperature; the vitiated atmosphere of their old huts, dependent on deficient ventilation; the deficiency in warmth of the newer houses, owing to their zinc roofs; the mismanagement of the umbilical cord at birth; the oily nature of the food of the inhabitants; the frequent inter-marriages of the St. Kildans; and "that it is a wise provision of Providence for preventing a redundant population on a rock where food is limited." Dr. Arthur Mitchell came to the conclusion that the mortality in question was intimately connected with the peculiar character of the houses, and was satisfied that "there was nothing exceptional in the mode of dressing the umbilical cord to account for the results." Other

observers have stated that the management of the cord was precisely the same as that which is followed on the west coast generally.

Mr. W. H. Corfield, of University College, London, in a letter to the *Times* in August, 1871, expressed great surprise that nothing should have been done to improve the sanitary condition of the houses and inhabitants, and pointed to the fact of there being only one child on the island, at the time he wrote, in a population of 71, and that one dying! The owner of the island replied to this letter, admitting the large infant mortality, and adds: "What the *cause* of this is I have never been able to ascertain, but I am certain that it is not what Mr. Corfield desires the public to 'rest assured' that it is. The state of things in the island is very different from what he imagines it to be. The inhabitants are well-fed, well-clothed, and, for a Hebridean peasantry, particularly well housed."

Rear-Admiral Otter followed up this letter of Macleod by another to the *Times*, in which he cited the proprietor's many acts of kindness to the inhabitants, and then gave his own opinion in these words:—"As to the mortality of the children, I believe the cause can be traced to the oily nature of their food, consisting chiefly of sea-birds, which build in incredible quantities on the different islands forming the group. The fulmar, which is found in no other place in the United Kingdom, is a peculiarly oleaginous bird, containing in its stomach a considerable amount of clear pinkish oil. . . . Though they have cows, potatoes, and meal, rice is their chief article of food, and thus the system becomes so impregnated with fatty matter that it gives a peculiar odour to their persons, and the touch of their skin is like velvet. The startling mortality of the children before the ninth or tenth day (which has not been over-stated) is caused by the strength of the mother's milk while nursing; and to prove this theory, a child being born during one day, the mother was kept on cocoa, meal, and biscuit, and the child thrived well. Those that survive infancy grow up strong healthy men and women in spite of their intermarrying so much among themselves. As to the dirty state of their dwellings, it never struck me they were worse than their neighbours on the main islands, if so bad."

The fulmar, which is perhaps the most interesting of the sea-birds with which St. Kilda swarms, is said to be seen pretty frequently in Orkney and Shetland, where, however, it is believed never to breed. There is no doubt its head-quarters

have long been St. Kilda. It is about the size of a middle-sized gull, and it weighs from 2 to 3 lbs. Every family has from three to four barrels, each containing about 200 birds, salted for winter use. Besides being highly esteemed by the islanders as food, the feathers and oil of the fulmar form two principal articles of export. Beds made of the feathers are supposed never to harbour insects. A statement made by Mr. E. C. C. Stanford, F.C.S., relative to fulmar oil, is that, "when genuine, it is of a clear, dark, slightly reddish cherry colour, and has a powerful and peculiar odour—an odour of which the whole island and all the inhabitants smell. It is certainly a fish oil, and possesses nearly all the properties of cod-liver oil. Its specific gravity is mid-way between cod-liver and sperm."

Mr. Seton states that "Fulmar fowling begins on the 12th of August, and lasts between two and three weeks. The fowlers are usually accompanied by a few of the younger women, some of whom can carry about two hundred pounds weight of birds. The oil is extracted from the stomachs of both the old and the young birds, and enclosed in long distended bags formed of the stomachs of old solan geese. The receptacle is held open by one man, while another, squeezing the body of the fulmar, forces the oil through its gaping bill. It proves of great service to the islanders during the long-continued darkness of the winter nights. In order to obtain the oil, the fowler requires to seize and strangle the bird in a rapid manner, otherwise it is immediately squirted in his eyes as a defensive movement; not, as is commonly supposed, through the tubular nostrils in the surface of the upper mandible, but through the throat and open mouth. Each fulmar contains about half a pint of oil."

Referring to the idea that the frequent intermarriages of the St. Kildans is calculated to produce the malady in question, by having an unfavourable effect upon the offspring, Mr. Seton very sensibly remarks:—"If, however, these unions had any connection with the matter, it seems highly improbable that their injurious influence would terminate a few weeks after the occurrence of the birth, seeing that the children which survive that period usually turn out healthy and vigorous."

And he sums up his final review of the question thus:—"Such, then, are the various explanations that have been offered with regard to the frequent occurrence of the eight-day sickness in St. Kilda. It does not appear that since 1862, when the present improved cottages were erected, there has been the slightest reduction in the number of fatal cases; and accordingly we may reasonably conclude that a vitiated

atmosphere is, at least, not the *sole* cause of the fatal malady. Doubtless the insanitary conditions which pertained to the older habitations—now chiefly, if not entirely, used as cellars and byres—may have exercised a baneful influence upon infant life, and moreover, it is possible that these unfavourable conditions may have left a temporary mark on the constitutions of the adults of St. Kilda; but I am disposed to acquiesce in Admiral Otter's views regarding the effect of the oily food of the sea-birds upon the mother's milk, and indirectly upon the health of her offspring."

In 1877, while on a visit to St. Kilda, Miss Macleod, sister of the proprietor, suggested that a properly qualified, experienced nurse ought to be procured, but one of the old St. Kildan worthies met the proposal with the reply—"If it's God's will that babies should die, nothing you can do will save them." "After Miss Macleod's return to Dunvegan, Mrs. Macleod (her sister-in-law) wrote to ask whether one of the St. Kilda women would come to the castle with the view of learning English, and then proceeding to Edinburgh to receive a thorough medical education; but the generous proposal was declined on the ground that all the women were afraid to leave their sea-girt home" (Seton).

Some time after this, I believe, Miss Macleod succeeded in getting the islanders to receive a nurse whom she had persuaded to go to their aid. I am sorry I have no information regarding the time this nurse was on St. Kilda, but I have been given to understand she was a woman without much training, and her presence there was not a success, and, in particular, the infant mortality still continued.

In the summer of 1890, the Rev. Angus Fiddes, then and now minister of St. Kilda, applied to the Glasgow Sick-poor and Private Nursing Association for one of their nurses to go to the help of the St. Kildans, he promising to pay her expenses out of funds collected by him for the purpose. Nurse Chishhall agreed to go, and left Glasgow in August of that year. She spent ten months there, returning in June, 1891. During that time three children were born, of whom two died and one lived. The child who lived was the Queen's baby, and Nurse Chishhall believed it lived "because it had all new things at birth."

Nurse Chishhall again went to St. Kilda in July, 1891, but before doing so, both she and the Rev. Mr. Fiddes, who also had paid a visit here, saw two or three doctors with a view to trying to get some suggestions which might help them to prevent the infant mortality. Among others, they saw Professor

W. L. Reid, who, after getting full reports from them as to the nature of the disease, &c., sketched out a method of treatment, which he asked them to adopt, and report the result. During the following year, as nearly as I can gather from a letter which I have received from Nurse Chishhall, five children were born. Of these, one was still-born, and of the rest, two lived and two died. The two who lived, however, were the only two cases in which the nurse had been permitted to carry out, from the first, the treatment recommended by Dr. Reid.

Nurse Chishhall came back to Glasgow in June, 1892, and did not return. Miss Wood had no other nurse at her command who could speak Gaelic, and so St. Kilda was once more left without skilled attention of any kind. Shortly thereafter Mr. Fiddes again came to Glasgow to try and procure another nurse. Dr. Reid was at the time on holiday, and he came to ask my help in getting one. Application was made to some of the institutions, and advertisements were had recourse to, but no Gaelic-speaking nurse could be found who was willing to banish herself for a year to "the land of feathers." Mr. Fiddes then asked me to give him instructions as to what the St. Kildans themselves could do to try and save their infants. I was ignorant of what advice Dr. Reid had given on the subject, and Mr. Fiddes could not enlighten me further than generally to state that he thought it had something to do with the dressing of the child after birth.

Considering that what theoretically would be likely to give the best chance to escape the disease would be the careful antiseptic treatment of the cord, I gave Mr. Fiddes instructions for the application of iodoform freely to it when it was first dressed, for it to be rolled up in iodoform gauze, the whole to be covered with a large pad of sublimated gamgee, and all the rest of the child's clothing and surroundings to be kept as scrupulously clean as possible. I further told him to see that a little fresh iodoform was dusted round the stump of the cord daily until it came off, and the umbilicus was satisfactorily healed.

On the 6th August last Mr. Fiddes, who was again on a visit to Glasgow, called on me, but unfortunately I was out, and, as he was returning the same day, I did not see him. He, however, left for me this note:—

"MONDAY, 6th August, 1894.

"The Rev. Angus Fiddes, St. Kilda, called to see Dr. Turner to inform him and Professor Reid of his success in preventing

the infant mortality that prevailed for generations in that island by means of your combined help. I have not lost a single case since I began the gauze bandages and pad on the navel. I dust the navel twice, morning and evening, with iodoform, also give a grain of the chloral twice a day. I begin these applications on the second day after birth, and continue till the critical ninth or tenth day is over. I pay particular attention to sanitation. The nurse must have everything about herself clean and free of any impurities personally pertaining to the hands. None of their wrappages are allowed about the infant, as they contain the bacilli; but I buy flannel in Glasgow when I am through. A St. Kildan mother never thought, hitherto, of making any preparations for the new visitor. He or she was wrapped in a piece blanket till the ninth or tenth day was over, and if the infant survived, then the mother began to show her affection for her offspring—not till then. This is now being changed, and faith placed in the means of relief. I also prevent the mother giving the baby the breast till the critical period is over, but I have a person beside me ready to suck the breasts and thus keep the milk going until I see the danger is over, and then I dispense with the bottle. Up till this time I feed the baby on sugar and water with a little cow's milk added. In this way I treat the infants, with the result that none have been lost. The people are deeply grateful, and I came along to express my thanks personally, but unfortunately you were out. . . . I leave to-day for Tyree, and then for St. Kilda on the 10th inst."

You will all agree that this report is eminently satisfactory. On receiving it I immediately wrote Mr. Fiddes correcting mistakes which he had made in the instructions I had given him, and suggesting improvements in the methods he had been pursuing. The following were the special points which I mentioned.

1. That the application of iodoform should begin with the first dressing of the cord, and not be delayed till the second day. What led to the idea of delaying the application of iodoform till the second day I do not know.

2. That the baby should be put to the breast from the first, and not kept from it till the "critical period is over." Doubtless this practice has had its origin in the theory, previously mentioned, that one of the causes of the disease was the oily nature of the food of the natives making the mother's milk too strong.

3. That so long as the infant remains well, and free from

the disease, no such heroic treatment as a grain of chloral twice a day is necessary. When I first saw Mr. Fiddes he asked me if I could recommend any treatment which might be tried in the case of any infant showing symptoms of the disease. While in practice abroad I, unfortunately, saw many cases of tetanus, and the result of my experience is that in that terrible disease the only drug in the pharmacopœia which can be relied on to give relief, and possibly to save life, is chloral. I therefore advised Mr. Fiddes to take a small quantity of it with him, and told him how to use it if necessity required. From his letter I find he has unnecessarily, possibly unwittingly, exceeded my instructions. No harm has been done, however, and the babies and the nurses have probably had, in consequence, a more peaceful time during the first ten days than babies and nurses usually experience!

Mr. Fiddes probably had no opportunity of replying to my letter before the last boat for the season left, but I hope to receive further news from him next summer, which I may have an opportunity of bringing before you next session.

I have, within the past few days, been informed by Professor Reid and Nurse Chisnhall that the instructions given by the former in 1891 were very similar to those subsequently given by me to Mr. Fiddes. They embraced the free application of iodoform to the stump of the cord, and the rolling of it up in alembroth gauze. In addition to this, the infants were given, at short intervals, 1 grain doses of potassium bromide, about 10 grains being given each twenty-four hours. As I have previously mentioned, Nurse Chisnhall was only permitted to carry out Dr. Reid's instructions in two cases, and in both of these the infants survived.

Turning for a moment to the most recent views as to the causation of tetanus, we find that it has, within the past few years, been proved to be due to a bacillus, and to be inoculable. It is said that the bacillus "appears to abound in many kinds of soil—in street dust, and in the sweepings of floors; and it has, when carefully looked for, constantly been found in and about the wounds and seats of inoculation in tetanic patients, and occasionally been found in the nerves leading thence to the cord itself and elsewhere. That the bacillus is the cause of tetanus is proved, not merely by its unfailing presence in cases of tetanus, but especially by the fact that the inoculation of rabbits and guinea-pigs with earth or dust containing it, with the morbid tissues of the blood of patients suffering from tetanus, or with the cultivated bacillus, is, with few exceptions, followed by tetanic symptoms. Several poisonous substances have been obtained from the bacilli of tetanus,

which, in sufficient doses, are themselves capable of inducing tetanoid symptoms—a fact which tends to confirm the view that micro-organisms produce deleterious effects, not by their simple presence in the tissues, but by some poison to which they give origin. Indeed, it is suggested by Giordano that the symptoms in tetanus are due to the absorption into the system of poisons generated by the bacilli resting in and about the primary lesion.”¹

If this view be correct, is it not likely to be equally correct that in certain positions, with certain surroundings, the tetanus bacilli can more freely generate the poisons which are so dangerous to life? It may be that the “wrappages” referred to by Mr. Fiddes, in which infants used to be swaddled in St. Kilda, formed such a favourable home for the bacilli, and such favourable soil for their generating the poisons referred to, that the inevitable result was the mortality which has so long been inexplicable.

If this be the case, it naturally follows that cleanliness in all the surroundings of the infants, along with the free use of such antiseptics as are fatal to the tetanus bacillus, is certain to be followed by the disappearance of the disease, not only in St. Kilda, but in other places where, not certainly so frequently, but none the less surely, tetanus is destructive of infant life.

This remark naturally raises the question of the geographical distribution and prevalence of this disease. It is impossible to enter fully into this question to-night. I may, however, refer any who desire to investigate the question of its geographical distribution more fully, to an exhaustive article on the subject in Hirsch’s *Handbook of Pathology*, vol. iii, p. 615, *et seq.*, from which it will be seen that it prevails to a greater or less extent all over the world.

In many places a very considerable decline in the death-rate from it has followed upon hygienic reforms.

In proof of this, the case of the Dublin Rotunda may be quoted. In Dr. Clarke’s time, out of 17,650 live births during twenty-five years ending 1782, 2,944 children died of tetanus—*i. e.*, nearly 17 per cent. Alterations were made in the hospital so as to allow more thorough ventilation, &c., and as the result, out of 8,033 subsequent births only 419 children died—between 5 and 6 instead of 17 per cent. Later statistics of the same hospital are given by Dr. Collins in his *Treatise on Midwifery*, which show that matters had so much improved, as the result of improved hygienic measures, that out of 16,654 children born during the seven years ending 1833, only 37 died of tetanus neonatorum.

¹ Bristowe’s *Practice of Medicine* (seventh edition), p. 1155.

Like ordinary tetanus it is most common in the tropics, but, in contrast to that disease, "it has an endemic area which extends far beyond those limits and reaches, indeed, to the highest latitudes." To confine ourselves to our own country, we find that in all parts of Scotland infantile tetanus annually claims a few victims. In proof of this, I draw your attention to two tables. One of them is given by Seton, and shows the number of children *under three months of age* who died from tetanus in Scotland, and its five groups of districts, during the years 1871-73.

GROUPS OF DISTRICTS.	POPULATION ESTIMATED 1872.	CASES OF TETANUS, 1871-73.
Principal Towns, . . .	1,094,061	12
Large Towns, . . .	342,611	8
Small Towns, . . .	783,599	4
Mainland (Rural), . . .	1,047,536	13
Insular (Rural), . . .	131,418	11
Scotland, . . .	3,399,225	48

From this table it may be seen that, comparatively, the mortality was far greater during these years in the insular districts than in the rest of Scotland. Had it been as prevalent in the rest of Scotland as it was in the insular districts, instead of a total of 48 cases there would have been no fewer than 284.

DEATHS OF CHILDREN UNDER THREE MONTHS IN SCOTLAND AND ENGLAND FROM IDIOPATHIC TETANUS AND ERYSIPELAS DURING THE TEN YEARS 1883-1892.

YEAR.	UNDER THREE MONTHS.			
	SCOTLAND.		ENGLAND.	
	Idiopathic Tetanus.	Erysipelas.	Idiopathic Tetanus.	Erysipelas.
1883	13	72	...*	...*
1884	17	87	...	...
1885	14	73	...	...
1886	13	60	...	...
1887	18	64	...	...
1888	18	78	3	335
1889	4	67	...	238
1890	13	55	2	250
1891	19	78	7	227
1892	15	84	...	270

* Up to and including 1887 the English Registrar-General's returns only give the deaths under 1 year. Population, 1891—England and Wales, 29,002,925; Scotland, 4,025,637.

The second table is one with which our esteemed friend, Dr. J. B. Russell, has furnished me, and includes all cases of tetanus which were registered as having occurred in children under 3 months in Scotland during each of the ten years from 1883 till 1892, and in England during each of the five years from 1888 till 1892. Dr. Russell has, at my request, added the cases of death from erysipelas in children under 3 months which were registered during the same years.

It is unfortunate that in these returns all cases of tetanus are entered as "idiopathic tetanus," and that deaths from "erysipelas" are not grouped according to their locality—i.e., parts of the body affected. It is curious to note the predominance of both diseases, but especially tetanus, in Scotland.

While thinking of this subject shortly after receiving Mr. Fiddes' letter, my attention was still further drawn to it in the following way:—One of our excellent Glasgow Maternity trained nurses, while in attendance upon one of my patients, one day, when her baby charge was about 7 or 8 days old, asked me to look specially at the child. I turned to where she was sitting with the fully dressed baby, and, while still at least a yard away, the offensive effluvium from the decomposing cord was perfectly distinct.

The treatment of the cord still carried out almost universally in this country is, as you all know, the following (I quote from the late Professor Leishman's—first Honorary President of this Society—*System of Midwifery*, the last edition):—"The decomposition of the tissues of the cord takes the form rather of withering than of moist putrefaction; but before it drops off, there is generally more or less of the odour characteristic of the process which is going on. To obviate this, it has long been the practice to wrap the cord in cotton or linen, passing the stump in the first instance through a hole which has been *burnt* in the cloth, so as to secure the antiseptic action of the charred margin. This, of course, is not essential, but is undoubtedly favourable to cleanliness, and the dressing may be renewed at proper intervals, to be determined by the amount of moisture which makes its appearance, and which will depend in a great measure on the thickness of the cord. It occasionally happens, after the stump has dropped off, that the navel remains in a fungating condition. In other cases ulceration and even sloughing of the margin is observed, a condition which is always serious, and sometimes fatal."

Now, it seems to me, that in this method of managing the

cord in new-born infants we are decidedly behind the age. We have all, more or less, adopted the use of antiseptics in midwifery, the aseptic or antiseptic treatment of all kinds of wounds is universal, and yet we go on, in this matter, in precisely the same way as our grandfathers did. True, Professor Leishman mentions the advisability of burning the rag in which the cord is folded, "so as to secure the antiseptic action of the charred margin;" but how often do nurses of the present day, in their superior wisdom, look down upon this little safeguard as a fad of the old-fashioned school! And I am sure many of you have seen, as I have done, a nurse cutting a hole in the navel cloth with any insanitary pair of scissors which happened to be lying about. The only work on midwifery in which I have observed any recommendation to the antiseptic treatment of the cord is Parvin's *Science and Art of Obstetrics*, where he suggests that "iodoform or creoline gauze may be used for wrapping the cord," and carbolic water, or carbolic ointment, applied to any raw surface which may remain after the cord comes away.

It may be that no such antiseptic precautions are necessary in such admirably conducted institutions as our Maternity Hospital; but you must remember that such institutions are so aseptic, and antiseptics so freely used in them, that no such dangerous intruders as tetanus or erysipelas microbes have the slightest chance of surviving!

In general practice, perhaps one of the greatest objections, in the past, to the use of efficient antiseptics in dressing the cord, is their disagreeable odour, making them very objectionable in the lying-in room. But if one could have an efficient antiseptic, which would at the same time be free from odour, would it not be wise to use it in all our midwifery cases, and so avoid all risk?

Now, I think we have exactly such a substance in the new iodine preparation, called Loretin, which is free from odour, and at the same time non-poisonous. It has been shown that the action of loretin upon granulating and healing processes is a very favourable one, and is superior to that of iodoform. Its antiseptic properties have been demonstrated both by bacteriological experiments and practical use; even a 1 in a 1000 solution of loretin destroys the vitality of pathogenic bacteria. It is not toxic. Its antiseptic action is unaccompanied by any inflammatory irritation in the vicinity of the wound; on the contrary, any eczematous tendency that may be present rapidly disappears under treatment with it. Loretin is not only free, as I have said, from the unpleasant odour

of iodoform, but actually removes mal-odours connected with purulent secretions and decomposing tissues.

What is claimed for it I can bear testimony to from my practical experience with it during the past six months. I have used it in various surgical cases with excellent results. In the case above referred to, the offensive odour from the decomposing cord immediately disappeared on its being dusted on the part.

It has been suggested that loretin, when mixed with a little magnesia, is well adapted for use as a dusting powder. For such use, undiluted, it would be too expensive, nor is it necessary. It may be used mixed with magnesia, or Fuller's earth, or with the dusting powder Emol-Keleet, which was recently brought prominently before the profession at the meeting of the British Medical Association at Newcastle-on-Tyne, by a paper read by the President of the Dermatological Section, Dr. Allan Jamieson of Edinburgh. He concluded that emol-keleet, as a dusting powder, is "a perfectly innocuous and inoffensive material, therapeutically superior to any previously known."

A short time ago I wrote Messrs. Burroughs, Wellcome, & Co., of London, making the suggestion that a mixture of loretin and emol-keleet would probably prove a valuable dusting powder for general use for infants. I received a reply from which the following is an extract:—"The suggestion which was originally made to use magnesia as a diluent of loretin, was made on the grounds that magnesia is so good an absorbent, is comparatively cheap, popular with some continentals in this direction, and very harmless. The suggestion now made by yourself that emol-keleet be used as a diluent is, in our judgment, a most admirable one, and one which should have very excellent results."

What I have to suggest, then, is that by the use of some such dusting powder as this our treatment of the new-born infant will be brought more into line with present-day anti-septic midwifery and surgery, the common excoriations of the skin surrounding the genital organs, &c., will in great measure be avoided, and all such troublesome complications as excoriations and fungating excrescences of the umbilicus, or ulceration or sloughing of its margin, and erysipelas neonatorum, and tetanus neonatorum, will be things of the past.

NOTES ON CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.

By ERNEST L. MARSH, M.B.,
City of Glasgow Fever Hospital, Belvidere.

IN November of last year, Dr. J. B. Russell, Senior Medical Officer of Health for Glasgow, concluded arrangements with the Director of the British Institute of Preventive Medicine for a supply of the serum, prepared under his supervision, as an antitoxic agent in diphtheria. The serum was obtained on condition that the treatment be conducted, and fully reported on, in the hospitals of the Local Authority of Glasgow; and since that date the serum therapy of diphtheria has been practised in the diphtheria wards of the City Fever Hospital, Belvidere. It is important to state that the first supply of serum was obtained on 12th November, 1894, but that until 5th January, 1895, the supply was so limited that its use was reserved for cases of special gravity. Subsequent to the latter date, the serum treatment was applied to every case admitted, and at once. It is of great importance to appreciate these facts in considering the value of this method of treatment.

The antitoxin, prepared by the Institute, is sent out in solution in the serum obtained from immunised horses. Each phial holds about $35\frac{1}{2}$ c.c. (10 drachms), and the cost price at which it is sold enables registered practitioners to get this quantity for 1s. 6d.

The Council of the Institute issue printed regulations on the precautions to be observed when using the serum. Thus:—

“1. The dose for a child weighing 20 lb. is 20 c.c. for a severe case, 15 c.c. for a moderate, and 10 c.c. for a mild case. In a severe case 10 c.c. may be again inoculated after twelve hours, but in any case it is advisable to inject 10 c.c. twenty-four hours after the first inoculation.

“2. The syringe must be boiled for five minutes immediately before the inoculation. The syringe recommended by the Institute contains 10 c.c., and may be obtained either at the Institute or from Messrs. Allen & Hanbury, Plough Court, E.C. After this dose has been introduced, and, if it be thought necessary to inject more, the needle is left *in situ* and the barrel of the syringe refilled. The syringe after using is to be boiled for one minute.

“3. The injection is usually made under the skin of the abdomen, and a swelling appears which is, however, absorbed in a few hours.

A little tenderness sometimes persists for twenty-four hours. The skin must be washed with carbolic acid (1 in 20) before the inoculation is made."

Owing to the importance of obtaining accurate statistics regarding the value of the treatment, those using the serum supplied by the Institute are requested to attend to the following points:—

"1. A fragment of the membrane shall be at once sent to the Institute in order that the bacteriological diagnosis of each case may be duly made. (*N.B.*—Specially prepared tubes and boxes for the forwarding of specimens may be obtained on application, price 1s. The fee for bacteriological diagnosis is 2s. 6d.) The membrane may be forwarded in a sterilised glass-tube, or between folds of dry lint or blotting paper.

"2. In case the disease ends fatally the medical attendant will oblige by immediately notifying the patient's death to the Director of the Institute, together with full notes of the case.

"3. In case of recovery the Council will be obliged if notes of the case be sent to the Director not later than one month after the application of the treatment.

"Notes to be forwarded.

"1. Sex, age, and weight of the patient.

"2. The history of the case previous to the injection, noting especially the exact date of the onset of the disease.

"3. The exact condition of the throat and respiratory passages at the time the injection is made, together with the state of the pulse, temperature, &c.

"4. The immediate and remote effects of the injection.

"5. The occurrence or non-occurrence of a rash some days after the injection.

"6. The presence or absence of albuminuria.

"7. The occurrence of post-diphtheritic paralysis.

"8. The treatment applied before and after the inoculation.

"In case of fatal issue it is especially requested that careful notes be taken of the *post-mortem* appearances."

In publishing this batch of reports on the first six cases in which the serum was used therapeutically in this Hospital, it is thought advisable to present them *in extenso* in the same form as they were forwarded to the British Institute of Preventive Medicine. It will be noted that they contain the information requested in the form prescribed. With reference to the first condition mentioned above, it will be observed that the "bacteriological diagnosis" was made in the laboratory attached to the hospital by myself.

I do not intend to be in a hurry to express an opinion on the merits of the treatment, and therefore refrain at present from making any estimate of its value from the showing of the statistics in this hospital.

It is hoped that the data contained in the following reports will allow of an independent estimate being made by those who carefully examine them, of the amount of therapeutic value in the serum in each of the cases treated.

I have to record my obligations to Dr. A. R. Ferguson for his assistance, especially at the *post-mortem* examinations.

CASE I.—Janet M'A., aged 4; weight, 2 st. 6 lb. 10 oz.

History of Case Previous to Injection.—Patient was admitted to hospital on 9th November, 1894, at 1.55 P.M., with a history of an illness beginning eight days previously. The initial symptoms were those of an ordinary malaise, accompanied by slight soreness of the throat. The subsequent train of symptoms definitely indicated the establishment of a local disease in the throat; and the occurrence of hoarseness, with occasional slight difficulty in breathing during the last three nights, pointed to some degree of laryngeal implication.

The following observations were made on admission:—The patient presents no urgent symptoms. The face is moderately flushed, and the cheeks have a heightened colour. The expression is that of languor. There is restlessness, alternating with drowsiness. The skin is dry, and free from any eruption. The tongue is moist, and lightly coated with white fur. Examination of the throat shows the faucial parts to be uniformly injected, and the tonsils to be moderately enlarged. A patch of white false membrane is discovered firmly adherent to the mucous membrane of the posterior pillar of the fauces on the right side. There is slight swelling of the lymphatic glands at both angles of the jaw. Respiration is not hurried, but it is somewhat harsh. The pulse is regular, of good tension, and quickened (110 per minute). The urine is normal.

The temperature on admission was 99.6° F.

The treatment adopted on admission consisted in the application locally, every four hours, of a warm saturated solution of boric acid in the form of a spray; also the administration internally, at the same intervals, of a mixture containing in each dose: Liq. hydrarg. perchloridi, 10 minims; liq. ferri perchlor., 2½ minims; liq. strychninæ hydrochlor., 1 minim; glycerini pepsini acidi, 15 minims.

On the following day (10th inst.) a steady increase in the amount of pseudo-membrane on the affected faucial parts was

observed, and on the 11th inst. the occurrence of an occasional croupy cough was noted for the first time. In the early morning of this day patient had a short attack of inspiratory dyspnoea, which occasioned some congestive lividity of the face and lips while it lasted. Examination of the throat now showed increased redness and tumefaction of the mucous membrane of the fauces, with a new formation of white membranous exudation on the surface of the *left* posterior pillar of the fauces and on the surface of both tonsils. The constitutional symptoms developed *pari passu* with the spreading of the diphtheritic lesion of the mucous surfaces. The pulse became accelerated (120 per minute), but continued regular, and of fairly good tension. The child was feverish and fretful, and did not sleep well. There was great disinclination for food.

The following are the records of the temperature and daily quantity of urine passed up to this time:—

Date.	Hour.	Temperature.	Urine.
9th November,	2.30 P.M.	99.6° F.	...
	(on admission)		
" "	8 P.M.	98.4°	Passed with motion.
10th "	8 A.M.	99.2°	...
" "	8 P.M.	99.2°	10 oz.
11th "	8 A.M.	99.6°	...
" "	8 P.M.	98.4°	20 oz.
12th "	8 A.M.	100.8°	...
" "	8 P.M.	100.4°	19 oz.

State of Patient at Time of Inoculation.—The treatment by serum inoculation was commenced at 10 P.M. 12th November. Immediately prior to this the following notes describing the general appearance and result of the physical examination of the patient were made:—

The patient now presents some pallor of the countenance, and other asthenic symptoms characteristic of diphtheria toxæmia. The pulse is become feeble, small, and rapid (150 per minute), while there are other signs of general weakness in the languor, decubitus, and restless shiftings of position. The supervention of laryngeal symptoms is now almost constant. There is slight hoarseness of the voice, and frequent croupy cough. The child has recently had another short attack of respiratory distress, in which the general surface became slightly livid and the restlessness characterised by struggles for breath. Examination of the throat shows the diphtheritic lesion to be spreading, and there

is now a pronounced involvement of the posterior pillars of the fauces on both sides. There is also a newly affected area visible on the pharyngeal mucous membrane.

The cervical glands are a little more prominent than formerly.

The heart's sounds are rapid, but pure. Auscultation over the lungs detects numerous sonorous rhonchi conducted from the larynx and larger bronchi.

The urine is free from albumen.

At 10 P.M. the skin over the front of the abdomen was thoroughly cleansed, and treated with a solution of perchloride of mercury (1 in 1,000), preparatory to the subcutaneous administration of the serum. Owing to the regulation syringe holding 10 c.c. not having arrived, a sterilised syringe, charged with 2 c.c. of serum, was now used to give the first injection. From this time till 12 o'clock midnight, 20 c.c. serum in all were thus injected under the skin of the abdomen at five separate points. This produced a corresponding number of small oedematous swellings, with localised reddening of the skin. The other forms of treatment were continued as before.

The following are the records of the temperature, with the pulse and respiration rates for the remainder of this day:—

12th November.	Temperature.	Pulse.	Respiration.
9 P.M.	99·8° F.	150	24
10·30 P.M.	101·4°	154	24
12 MIDNIGHT,	101·0°	140	24

Progress of Case.—During the night, patient slept well and was not restless. At 2 and 6 A.M., 13th inst., she coughed up several small fragments of membrane while the throat was being sprayed with boric acid solution. There was no evidence of a general reaction. No sickness, headache, thirst, nor any complaint of pain. In the morning the skin of the abdomen still showed a faint blush round the site of the different punctures. Between the hours of 10 P.M. yesterday and 8 A.M. to-day, patient passed 7 oz. of urine, of a specific gravity of 1030. It was acid in reaction, and loaded with urates. On testing with heat, a distinct trace of albumen was obtained.

There was no noteworthy change observed in patient's general condition this morning, though the 8 A.M. temperature (99·6° F.) had declined a little compared with the 8 P.M. temperature (100·4° F.) of the previous evening. The countenance remained pallid. Examination of the records of the pulse and respiration rates showed a continuation of the febrile disturbance which began the night before.

The diphtheritic lesion visible in the throat seemed *in statu quo*, while it was particularly observed that there was no appearance of spontaneous separation of the pseudo-membrane.

Throughout the day, patient had an occasional laryngeal cough, and on two occasions, while the throat was being sprayed, several small fragments of membrane were coughed up. Examination of these bits of membrane showed nothing that might definitely localise their source. One fragment presented markings which resembled a cast of the trachea, while another was slightly tinged with blood.

Further examination of the throat at 9 P.M. showed an alteration from the conditions seen in the morning. The mucous membranes of the soft palate, fauces, tonsils, and pharynx were more injected, and the patches of pseudo-membrane better defined than formerly. Some of the patches were now seen to be partly detached.

Owing to the pulse being slightly irregular in rhythm and easily compressed, patient was placed on stimulant (whisky, 30 minims every hour).

The following were the four hourly records of the temperature, and of the pulse and respiration rates for this day:—

13th November.	Temperature.	Pulse.	Respiration.
4 A.M.	101.6° F.	120	30
8 A.M.	99.6°	144	26
12 NOON	100.0°	148	28
4 P.M.	100.6°	150	26
8 P.M.	99.2°	148	26
12 MIDNIGHT	98.4°	120	30

15 oz. of urine were passed in the twenty-four hours.

On the morning of the 14th November, the night nurse reported that patient had had an excellent night. She coughed up a few small fragments of membrane at 2 and 6 A.M., while receiving the spray. The cough was infrequent, and no longer of a husky character.

Examination of the throat showed an improved condition of matters. The tonsils were almost denuded of membrane, and their surface simply eroded. There were indications of the spontaneous separation of other pieces from the posterior pillars of the fauces, and there was less to be seen on the posterior wall of the pharynx.

The pulse continued rapid, but it had improved in tension and regularity.

The urine was acid in reaction, and had a specific gravity of

1025. It was still loaded with urates, and contained about the same quantity of albumen as on the 13th.

At mid-day the face was noticed to be flushed, and the skin over the front of the chest to present a faint diffuse blush. Three hours later these parts, together with the rest of the trunk, the buttocks, and the thighs, were occupied by a bright morbilliform rash. This was followed shortly afterwards by slight perspiration. At 5 P.M. the rash had disappeared from the face, buttocks, and thighs, but still presented a faint trace on the front of the chest and upper part of the back. At 6 P.M. patient was noticed to be perspiring freely, and at 10 P.M. the skin was cool and clear.

On the whole, patient had a very good day. Her cheeks now presented some healthy colour, the breathing was easy, cough very infrequent, and the pulse kept regular and fairly strong.

The records of the temperature, and pulse and respiration rates for this day were as follows:—

14th November.	Temperature.	Pulse.	Respiration.
4 A.M.	98.0° F.	125	26
8 A.M.	99.4°	132	24
12 NOON	102.8°	152	32
4 P.M.	102.8°	156	34
8 P.M.	100.6°	136	24
12 MIDNIGHT	98.4°	120	24

14 oz. of urine were passed this day.

On the 15th inst. the child presented a very satisfactory appearance. The cheeks had a healthy tinge of colour, and the skin elsewhere was cool and clear. She had slept well during the night. At 2 A.M. two small fragments of membrane were coughed up while the throat was being sprayed.

The tongue was slightly coated all over the dorsum. The injection of the mucous membranes of the soft palate and parts at the back of the throat was still marked, but the only definite patch of diphtheritic membrane that could be discovered was on the posterior pillar of the fauces on the right side.

The cervical glands were still distinct to the feel.

The lungs appeared to be perfectly healthy. The pulse showed a marked improvement in its character.

The urine had a specific gravity of 1018. It was alkaline in reaction, and precipitated phosphates and albumen on heating. The amount of albumen was slightly less than yesterday.

The temperature, pulse, and respiration records for this day were:—

15th November.	Temperature.	Pulse.	Respiration.
4 A.M.	98·0° F.	128	28
8 A.M.	97·8°	120	24
12 NOON	98·6°	128	24
4 P.M.	98·0°	140	28
8 P.M.	98·4°	128	26
12 MIDNIGHT	97·0°	100	24

24 oz. of urine were passed on this date.

On the 16th inst. the throat was nearly clean, only a little thin membrane being present on the right posterior pillar of the fauces. The laryngeal symptoms had entirely disappeared. The child was feeding well, and was very bright and active. The morning and evening observations on the temperature, and pulse and respiration rates were:—

16th November.	Temperature.	Pulse.	Respiration.
8 A.M.	97·0° F.	128	24
8 P.M.	97·8°	100	24

15 oz. of urine were passed. This had a faint acid reaction, and precipitated a trace of phosphates and albumen on heating.

On the 17th inst. the throat became quite clean. The general improvement was maintained, though a trace of albumen was still present in the urine (26 oz. passed). The child continued well, and the temperature varied between normal and subnormal till the evening of the 19th inst., when she unfortunately sickened with scarlet fever. This new infection proved benign, however, and patient convalesced without developing any of the paralytic sequelæ of diphtheria.

She was dismissed well on the 26th January, 1895.

Bacteriological Examination.—On the 11th November, a culture tube containing blood serum was inoculated from a swab passed over the tonsils; examination of the cultivation twenty-four hours later yielded the bacillus diphtheriæ.

CASE II.—John S., aged 1; weight, 18½ lb.

History of Case previous to Injection.—Admitted to hospital 17th November, 1894, at 11·45 A.M. Child had been out of sorts for some time, the supposed cause being teething. The first definite symptom occurred five days before admission, when he had an occasional harsh cough. On the third day of illness the cough became croupy, and on the night before admission the breathing was noisy.

On admission the temperature was 100° F.

State of Patient at time of Inoculation.—The first inocula-

tion with serum was done two and a half hours after admission, the patient's condition having meanwhile undergone no change.

There was then extreme pallor of the face and lips; involvement of the lower intercostal and supra-clavicular spaces in the respiratory movements; crowing and prolonged inspiratory sounds, and respiratory efforts amounting to 36 per minute.

The mucous membrane of the soft palate was pale, while that of the faucial parts was red and congested. Both tonsils were slightly enlarged. Their surface was smooth in outline, and covered with uniform patches of ash-coloured membrane that presented all the clinical characteristics of the pseudo-membrane of diphtheria. The space between the two tonsils was too small to allow of a satisfactory view of the parts behind. The tongue was moist and clean.

The cervical glands were very slightly enlarged.

Examination of the lungs by percussion showed them to be healthy, and no adventitious sounds could be heard on auscultation, except the crowing sounds originating in the larynx during inspiration.

The heart sounds were rapid but pure. The pulse was 152 per minute, regular and soft.

Progress of Case.—At 2.30 P.M. on 17th November, 15 c.c. of serum were inoculated under the skin of the abdomen—first 10 c.c., and immediately afterwards 5 c.c. This was performed under antiseptic precautions.

The local treatment throughout the illness in hospital consisted in spraying the throat every two hours with a saturated solution of boric acid.

After the inoculation patient slept till 4 P.M. without any noteworthy change.

Shortly after 4 o'clock he became a little restless and slightly flushed; was very restless from 4.30 P.M. till 5.15 P.M., and breathing was noisy.

After this the patient slept till 8.30 P.M. There was now a diffuse flush over the entire body. Skin warm and dry. Throat condition *in statu quo*. There was plenty of thin mucous secretion coughed up into the back of the throat during the examination.

The swelling at the site of the serum injection had now disappeared.

From 10 P.M. to 11.30 P.M. patient was restless. At 12 midnight he was sleeping, but the breathing was noisy. Skin warm and flushed, and perspiring freely about the head.

The following were the four hourly records of the temperature and pulse and respiration rates taken up to this time:—

17th November.	Temperature.	Pulse.	Respiration.
12 NOON	100·0° F.	152	36
4 P.M.	100·4°	160	40
8 P.M.	101·0°	160	46
12 MIDNIGHT	101·8°	160	60

At 4·30 A.M., November 18th—*i.e.*, fourteen hours after the first injection, patient showed no improvement, but was worse if anything.

Pulse rapid, feeble, and irregular. There was a return of the extreme pallor of the face. He was restless, and the breathing was rapid and characterised by loud crowing inspiratory sounds, with indrawing of the flexible parts of the chest wall, as on admission. Whisky (1 dr.) administered.

At 5 A.M. 9 cc. more serum were injected, and stimulant (whisky, 30 minims) given every hour. Patient's condition continued unfavourable, however. Pallor of face very marked. Pulse continued feeble and irregular. There was a little retching and vomiting of curdled milk between 9 and 10 A.M.

The stimulant was now changed to iced champagne (30 minims every quarter of an hour). Child drank readily. He became more restless and prostrate towards mid-day, and death supervened at 1·5 P.M., a little over twenty-four hours after admission.

Urine was passed several times in bed during the illness.

The following complete the records of the temperature, pulse, and respiration rates:—

18th November.	Temperature.	Pulse.	Respiration.
4 A.M.	100·0° F.	72	34
8 A.M.	98·0°	120	64
12 NOON	100·0°	162	58

Bacteriological Examination.—The Loeffler bacillus was found in growths on glycerine agar forty-eight hours after inoculation of the tubes.

Notes of Post-mortem Appearances.

Examination made at mid-day, 19th November. Body is well nourished, and surface presents nothing noteworthy.

Thorax.—Pericardium contains about 1 oz. of clear fluid.

Heart is of normal size. The vessels on its surface are congested, and the auricles and right ventricle contain blood-clot; otherwise the organ presents nothing worthy of note.

Lungs.—Healthy.

Abdomen.—Slight thickening of the parietes in the neighbourhood

of the punctured skin. On section this thickening is found to be slightly emphysematous. The cellular tissue in the immediate neighbourhood is œdematous.

Spleen—Normal in appearance.

Left Kidney exhibits a serious congenital defect. The organ is found to be represented by a disc-shaped piece of tissue about the size of a shilling. It resembles kidney tissue in colour, and lies in normal relationship to the adrenal, which appears to be normal. An impervious ureter connects it with the bladder. *Right kidney* weighs $1\frac{1}{2}$ oz. It occupies a normal situation, is lobulated in outline, and appears to be slightly hypertrophied.

Liver, pancreas, adrenals, stomach, and intestines present nothing noteworthy.

Throat.—Tongue and lining membrane of the buccal cavity look perfectly healthy.

Both tonsils are enlarged, and about the size of ordinary beans. Their surfaces are completely covered with the pseudo-membrane. The pillars of the fauces, the uvula, and the pharynx are free from membrane. The mucous membrane lining the larynx is injected red, and is covered with thin, clear, frothy secretion. The trachea and large bronchi are also injected, and have similar thin watery secretion covering their mucous surfaces. There is no evidence of false membrane in these situations. The parts about the posterior nares look healthy.

CASE III.—Margaret F., aged $1\frac{1}{2}$ year; weight, $13\frac{1}{2}$ lb.

History of Case previous to Injection.—Patient was admitted to hospital on 23rd November, 1894, at 5 P.M. The child was said to have been ailing for some weeks previous to admission with symptoms pointing to bronchial catarrh. Three days before admission febrile symptoms set in, and a difficulty in swallowing was noticed, while the cough became croupy. Since morning the symptoms of laryngeal mischief had been urgent.

On admission to hospital patient looked very ill. There was extreme pallor of the whole surface, and especially of the face; lips not quite so pale as the rest of the countenance, but slightly livid, and there was also a tinge of lividity on the cheeks which imparted a leaden hue to the countenance.

The skin was hot and dry. Temperature $102\cdot6^{\circ}$ F.

The respirations numbered 48 per minute; breathing was slightly laboured and attended with croaky respiratory sounds.

The cervical glands were not enlarged.

Pulse was 130, regular, but weak.

Stimulation with brandy in 15 minim doses every hour was commenced shortly after admission.

State of Patient at the time of Inoculation.—The treatment by serum inoculation was commenced five hours after admission—i. e., at 10 o'clock P.M. During the interval between admission and the operation, patient had short snatches of sleep, broken by fits of restlessness, with shiftings of position. At this time (10 P.M.) the countenance still presented a tinge of lividity. The head was thrown well back, with the neck fully extended. The respirations (60 per minute) were attended with a throttling noise; the inspiratory portion was somewhat protracted, and with it there occurred a moderate sucking-in movement of the supra-clavicular spaces and the lower lateral regions of the chest wall.

Physical examination of the lungs showed the percussion note over the left base behind to be modified in the direction of dulness. There was also an extension of the percussion dulness towards the lateral region of that side. Auscultation over this area detected a clear, high pitched, tubular respiratory murmur, which contrasted in a marked fashion with the vesicular type heard in a similar position at the right base. Elsewhere over the chest wall, both back and front, coarse rhonchi were audible by conduction from the trachea and larger bronchi.

The heart's sounds were rapid and feeble, but pure. Pulse 174, regular and easily compressed.

Examination of the throat showed the tongue to be pale, clean, and moist. There was abundant salivary secretion in the mouth. The faucial parts presented a uniform dull congested appearance. The tonsils were slightly enlarged from subacute inflammatory swelling and their surfaces were irregular. There was no visible diphtheritic affection of the fauces nor of any of the exposed surfaces of the throat at the time of examination.

The alæ of the nostrils were slightly excoriated from the presence of an irritating discharge of a thin yellow colour from the nose.

At 10 o'clock P.M., 12 c.c. serum were introduced with antiseptic precautions under the skin of the abdomen by one injection.

The child settled down after this and obtained short, uneasy snatches of sleep till midnight. At this time a fall in temperature of nearly 3° F. occurred, and the whole surface felt cold and clammy. The breathing was accelerated, and at the same time somewhat laboured, though this latter feature was not more pronounced than earlier in the day. The radial pulse was almost imperceptible. The leaden tint on the pallid

cheeks had slightly increased. The pupils were dilated and the eyeballs directed upwards.

The quantity of stimulant given was now increased to 30 minims of brandy every hour, and hot water bottles were applied to the sides and feet of the patient. Half-an-hour afterwards the coldness of the body surface had passed off, and there was some colour and perspiration present. The pulse was regular and the blood wave at the radial artery had improved somewhat in size, force, and character.

At 2 A.M. on 24th November, the pallor was again most marked, and the surfaces of the cheeks, hands, and feet were tinged with the lividity of congestion.

A throat spray, of a saturated solution of boric acid, had been employed several times since admission, but without causing any apparent dislodgment of pseudo-membrane from the lower air-passages. Besides this local treatment, and the other treatment already described, patient was getting, every two hours, a teaspoonful of the following mixture:—

R.—Liq. hydrarg. perchlor.,	. . .	℥ ii
. Tinct. ferri perchlor.,	. . .	℥ xxxvi
Liq. strychninæ hydrochlor.,	. . .	℥ xii
Glycerini pepsini acidi,	. . .	℥ iii
Aquæ,	. . . ad.	℥ iii.—M.

Swallowing was accomplished without difficulty.

There was an occasional laryngeal cough which was feeble and imperfect in character. No fragments of membrane had been coughed up.

The swelling under the skin of the abdomen at the seat of puncture had subsided through absorption, and the only evidence of the operation was slight redness and tenderness over the part.

At 4 A.M. it was evident that patient was dying. The mechanical obstruction to the passage of air had never been, since admission, so extreme as to necessitate operation, and the suffocative phenomena were only of secondary importance compared with the pallor of the surfaces and the shifting restlessness which marked the intensity of the constitutional infection.

During the next few hours of life the temperature rose to the range of a severe pyrexia. The face continued pale and slightly cyanosed, and the pupils were expanded. The pulse at 6 A.M. was so rapid and feeble as to be counted with difficulty. A condition of drowsiness now supervened, and the other indications of sinking gradually became more marked.

Death occurred at 9.20 A.M., about twenty-eight hours after admission.

The following are the two-hourly records of the temperature, and the pulse and respiration rates, during the illness in hospital:—

23rd November.	Temperature.	Pulse.	Respiration.
6 P.M.	102.8° F.	120	48
8 P.M.	102.0°	138	38
10 P.M.	101.8°	158	36
12 P.M.	99.0°	144	50
24th November.			
2 A.M.	98.0°	120	58
4 A.M.	104.8°	144	84
6 A.M.	104.0°	140	64
8 A.M.	103.2°	140	68

No *post-mortem* examination could be obtained.

Bacteriological Examination.—Cultivations on glycerine agar, made on admission, showed the bacillus diphtheriæ and streptococci on microscopic examination on 30th November.

CASE IV.—George T., aged 3½; weight, 28 lb.

History of Case previous to Injection.—Patient was admitted to hospital on 26th November, 1894, at 4 P.M., with a history of an illness beginning three days before, and characterised by a croupy cough and sore throat. There was no difficulty in swallowing. The following notes were made on admission:—

Patient's general condition is satisfactory, his appearance being bright and intelligent. The face and lips are of good colour, while the skin is cool to the touch, and perfectly clear. The tongue is moist and clean. The fauces are very slightly congested. The tonsils are not much enlarged, but their surfaces are irregular in outline, and covered with thin, greyish-white patches of membranous exudation. A similar condition exists on the posterior wall of the pharynx. There is an occasional croupy cough, but no respiratory distress. The cervical glands are only very slightly enlarged. The heart and lungs are normal on physical examination.

The observations on the temperature, and on the pulse and respiration rates, on the day of admission are as follows:—

26th November.	Temperature.	Pulse.	Respiration.
4 P.M. (on admission)	98.4° F.	104	24
10 P.M.	99.2°	120	28

The treatment adopted shortly after admission was the

application of a throat spray of a saturated solution of boric acid every four hours.

During the night following admission patient slept well, being disturbed, however, by frequent attacks of croupy cough. The throat spray caused a slight amount of mucous expectoration, but no dislodgment of membrane resulted. The child drank freely.

State of Patient at Time of Injection.—The treatment by serum inoculation was commenced a little over nineteen and a half hours after admission—viz., at 11.40 A.M. on 27th November. The following notes, describing the general appearance and physical condition of the patient, were made immediately before the injection of the serum:—

The general favourable appearance of the patient is preserved this morning. There is no respiratory distress, nor any marked constitutional disturbance. The pulse (120 per minute) is regular and full, but soft. Heart's sounds healthy. Respirations (28 per minute) are quiet and regular. There is no impairment of the pulmonary percussion note. Auscultation over the back, however, reveals the fact that the expiratory portion of the R. M. is lengthened, and accompanied by sonorous rhonchi.

The appearances of the throat are similar to those of yesterday—thin ash-coloured pieces of membrane exist in small, irregular patches on the surfaces of the tonsils, pillars of the fauces, and posterior wall of the pharynx. The urine is distinctly albuminous.

At 11.40 A.M., 20 c.c. of serum were injected under the skin of the abdomen in two doses of 10 c.c. each, and at two different places. Patient passed a quiet day, no change either in general or local condition being noticed. The treatment was now supplemented by the administration of liq. hydrarg. perchloridi, 10 minims; tinct. ferri perchlorid., 2½ minims; liq. strychninæ hydrochlor., 1 minim; glycerini acidi pepsin., 15 minims, every four hours.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates for the day:—

27th November.	Temperature.	Pulse.	Respiration.
2 A.M.	99.0° F.	120	30
6 A.M.	98.4°	112	28
10 A.M.	99.8°	120	28
2 P.M.	99.8°	110	24
6 P.M.	101.4°	104	34
10 P.M.	102.0°	140	32

28th November.—Patient was restless during the early part of the night, but slept better towards morning. The cough is not so harassing as formerly. During the day patient coughed up a considerable quantity of mucus, and took nourishment well. No membrane was expectorated, nor could any noteworthy change be observed in the throat.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates for the day:—

28th November.	Temperature.	Pulse.	Respiration.
2 A.M.	99·4° F.	120	28
6 A.M.	99·8°	128	32
10 A.M.	100·2°	125	24
2 P.M.	100·4°	130	30
6 P.M.	101·0°	136	34
10 P.M.	99·4°	88	24

29th November.—Patient's state in every respect continues very satisfactory. There is a marked improvement in the condition of the throat to-day. Several small spots of membrane are detected on each tonsil, but, with the exception of these, no membrane is visible elsewhere. The cough continues loose in character. The four-hourly records of the temperature, and of the pulse and respiration rates for the day are as follow:—

29th November.	Temperature.	Pulse.	Respiration.
2 A.M.	99·8° F.	100	30
6 A.M.	99·8°	120	32
10 A.M.	100·4°	124	24
2 P.M.	100·2°	128	26
6 P.M.	99·2°	134	30
10 P.M.	99·8°	100	28

30th November.—Patient slept well during the night, and was troubled very little with cough. The tonsillar surfaces are now almost entirely free from diphtheritic membrane, and its complete absence elsewhere continues. The cervical glands are not enlarged.

Beyond the presence of a few wheezing rhonchi heard at the right base posteriorly, the lungs are quite normal on physical examination. The condition of the heart and pulse is also good. A slight yellowish discolouration is to-day noted round the site of the punctures in the skin of the abdominal wall.

No expectorated membrane has been observed.

The following are the four-hourly records of the temperature and of the pulse and respiration rates for the day:—

30th November.	Temperature.	Pulse.	Respiration.
2 A.M.	97·6° F.	96	24
6 A.M.	97·0°	96	20
10 A.M.	99·8°	120	30
2 P.M.	99·2°	125	28
6 P.M.	99·0°	140	36
10 P.M.	97·4°	100	20

1st December.—The diphtheritic lesions in the throat are almost well. There are only a few small points of membrane now visible on the surface of the tonsils. No membrane elsewhere. The disappearance of albumen from the urine is noted to-day.

From this time the records of the temperature, and pulse and respiration rates continued normal. The throat became quite clean two days later. Patient now convalesced rapidly, and was allowed up on the 12th inst., the progress towards recovery having been uninterrupted.

26th December.—Dismissed well.¹

Bacteriological Examination.—Cultivations were made from the throat on glycerine agar, and after two days Loeffler's bacilli diphtheriæ were found.

CASE V.—Annie L., aged $1\frac{1}{2}$; weight, $22\frac{1}{2}$ lb.

History of Case previous to Injection.—Patient was admitted to hospital on 27th November, 1894, at 10·45 A.M., with a history of an illness beginning three days before with symptoms of sore throat. On the day preceding admission, white patches were observed on the tonsils; the breathing became accelerated and difficult; there was hoarseness. Just before admission the above symptoms had all become exaggerated. There was no pronounced feverishness.

The temperature on admission was 99·4° F. The pulse was 112 per minute, regular, and of low tension. The respirations numbered 36 per minute, and were somewhat loud. Patient was uneasy and fretful.

State of Patient at time of Inoculation.—The treatment by serum inoculation was commenced four and three-quarter hours after admission—*i. e.*, at 3 P.M. The following notes, describing the general appearance and physical condition of the patient, were made during the first few hours after admission:—

¹ Patient was again seen and examined on 17th February, 1895—*i. e.*, seven and a half weeks after dismissal, when he was found to be in excellent health, and to have developed nothing of the nature of a post-diphtheritic paralysis.—E. L. M.

The patient looks ill, pallor of the face being a marked feature, though the lips present a healthy colour. The skin is warm, and free from sensible perspiration. Respiration is conducted without any marked embarrassment. While resting, the neck is held fully extended, and there is a little recession during inspiration of the lower intercostal spaces significant of a slight degree of laryngeal obstruction. The presence of a frequent, dry, harsh cough, also points to laryngeal irritation. The fauces, tonsils, and pharynx are inflamed and slightly tumefied, but, on the whole, the inflammatory process is not severe. The entire surface of the uvula is covered with diphtheritic membrane, the anterior part of which became detached during the examination, and was removed with the finger. This left a raw, bleeding surface; the margins of the rest of the pseudo-membrane attached to the posterior part of the uvula were now well seen. The tonsils are slightly enlarged. There are several small patches of membrane on the surface of the right gland, and the left is similarly affected. There was no definite evidence of membrane elsewhere, though, owing to the narrowness of the passage and the restlessness of the patient, a satisfactory view of the posterior parts could not be obtained.

The cervical glands are slightly enlarged.

Examination of the chest by percussion is negative. On auscultation, the respiratory murmur is found to be feeble all over the chest. This is most noticeable at the extreme bases posteriorly, where small moist râles accompany the breath sounds. Coarse rhonchi are everywhere audible, being conducted to the ear from the larger tubes.

The heart's sounds are rapid, but otherwise satisfactory.

At 3 P.M. 20 c.c. of serum were injected under the skin of the abdomen at two separate points. Besides the serum treatment, patient was getting every two hours a mixture containing the following:—5 minims liq. hydrarg. perchlor.; $1\frac{1}{2}$ minim tinct. ferri mur.; 1 minim liq. strychninæ hydrochlor.; 5 minims glycer. pepsini acidi. Locally a throat spray of saturated solution of boric acid was also employed every two hours.

Two hours after the inoculation 30 minims of brandy every hour were given owing to increased pallor of the face, with feebleness of the pulse.

There was no difficulty in swallowing.

From this time until midnight a gradual change for the worse was noticed in patient's condition. The following were

the most prominent phenomena:—Accelerated respiration; extreme respiratory distress, with marked recession of the whole of the lower part of the chest wall and of the supra-clavicular spaces; perpetual motion and dilatation of the alæ nasi; breathing noisy, with rattling sounds in the trachea; almost incessant restlessness; colour of the face altered from simple pallor to leaden tints; slight lividity of lips; irregularity, increased rapidity (160 per minute), and softness of pulse; dilated pupils.

At 12 midnight no change was observed in the condition of the throat, nor had any membrane been coughed up. Owing to the gradually increasing urgency of the suffocating symptoms, the operation of tracheotomy had to be performed at 12.30 A.M. on 28th November. The child was successfully anæsthetised with chloroform, and the trachea opened without more than the ordinary difficulty attending this operation in so young a patient. A No. 20 Parker's tube was placed *in situ*, immediately after which considerable efforts of coughing to expel membrane took place. Fragments of varying size, some flat, others tubular, were removed from time to time by the aid of forceps. Towards the close of the operation the congestive lividity of the face and lips became more pronounced, but speedily disappeared with the establishment of free respiration through the tube.

A steam spray of a solution of bicarbonate of sodium (15 grs. to the oz.) was now directed against the mouth of the tube for five minutes every hour.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates up to this time:—

27th November.	Temperature.	Pulse.	Respiration.
10.45 A.M.	99.4° F.	112	36
(when admitted)			
2 P.M.	101.0°	140	32
6 P.M.	101.8°	138	40
10 P.M.	102.4°	140	52

At 1.40 A.M., 28th November (nearly eleven hours after the first inoculation), 10 c.c. additional serum were injected beneath the skin of the abdomen.

During the remainder of the night, patient, though restless at times, had no difficulty in breathing, maintained a good colour, took nourishment well, slept at intervals, and coughed up several more fragments of membrane. An examination of the throat by daylight showed a new deposit of membrane on the anterior surface of the uvula, and careful observation

detected the presence of several small patches on the posterior wall of the pharynx.

No noteworthy change was observed in patient's condition until the afternoon, when a return of the pallor and lividity, with increased weakness of the pulse, was noticed. There had been no coughing up of membrane since the early morning.

In the evening (from 5 to 7.30 P.M.) a return of the respiratory difficulty occurred, and patient became extremely restless. By 10 P.M. the child presented the same leaden hue of countenance which had been noted prior to the operation of tracheotomy. An examination of the throat made at this time showed not only extensive reformation of membrane on the uvula, but extension of the disease to the adjacent parts of the soft palate. The tonsillar surfaces were uniformly covered with membrane, and the amount on the posterior wall of the pharynx appeared to be increased. The rest of the throat was passively congested. There was no evidence of a spontaneous separation of membrane.

The records of the temperature, pulse, and respiration rates for this day are as follows:—

28th November.	Temperature.	Pulse.	Respiration.
2 A.M.	100·6° F.	140	64
6 A.M.	100·8°	144	68
10 A.M.	101·4°	134	46
2 P.M.	103·0°	138	50
6 P.M.	102·4°	140	76
10 P.M.	102·2°	140	52

At 10 P.M. 10 c.c. more serum were injected under the skin of the abdomen.

Patient's condition at 12.15 A.M., 29th November, showed slight improvement in the colour of the face. The restlessness had given place to a short interval of sleep. The respirations continued to increase (80 per minute), but were conducted without evident mechanical obstruction.

Physical examination of the lungs made at this time showed an absence of percussion dullness over the back, while the respiratory murmur heard over the chest behind was more pronounced and of greater amplitude than formerly. Owing to the tracheal noises, the detection of more minute phenomena was impossible.

As the pulse had become very irregular, both in force and rhythm, the administration of 2 minims tinct. of digitalis hourly was now commenced.

At 10.45 P.M. a large piece of membrane, tubular in form, was coughed up through the tube during feathering.

From this time until the early hours of the next morning patient had short snatches of sleep, broken by intervals of restlessness. The breathing continued hurried, but there was no evidence of difficulty. The pallor of the face still existed. A temporary and slight degree of lividity usually occurred while the throat was being sprayed. There was no cough except that caused by the use of the steam spray, or the feathering of the tube to clear it of mucus. A very small quantity of mucus was got up, but no membrane.

At 6.30 A.M., 29th November, there was a return of the lividity, unassociated with any mechanical obstruction to respiration. The child became extremely restless. This condition disappeared shortly after the administration of more brandy, and patient again reposed quietly. The improvement was only temporary, however, for at 9 A.M. the countenance again exhibited the fatal "blæ" colour; the hands and feet became livid; the respirations extremely rapid and shallow; the pulse almost imperceptible. Patient never rallied after this, and, in dying, presented slowly-increasing lividity of the countenance, especially marked at the lips, which became cold and appeared to swell. The extremities were cold and pallid. Care was taken that the lumen of the tube remained patent, but death supervened at 9.55 A.M.

The temperature, pulse, and respiration records for this day are :—

29th November.	Temperature.	Pulse.	Respiration.
2 A.M.	103.6° F.	136	84
6 A.M.	103.8°	132	88

No urine could be obtained for examination, as it was passed in bed throughout the illness. The napkins were soiled several times with loose, dark-coloured stools.

Bacteriological Examination.—At 1 P.M., 27th November, cultivations on glycerine agar were made from the surface of the tonsils. Examination of the growths, under the microscope, two days later, showed the bacillus diphtheriæ and numerous cocci.

Post-mortem Examination made 30th November.

Report.—The body is that of a well-nourished child. There is abundant *post-mortem* staining about the neck, shoulders, and posterior parts of the body.

The punctured skin of the abdominal wall looks healthy, but on following out the course of the hypodermic needle through the

abdominal wall a condition of inflammatory hyperæmia is found to exist immediately beneath the fatty layer and over the upper surface of the external oblique muscle. On the right side the area is about the size of the palm of the hand. The tissues which received the contents of the syringe on the left side of the abdomen present the appearance of a passive congestion, and are also slightly œdematous.

Thorax.—The pericardium contains about 4 drachms of serous fluid.

Heart looks perfectly healthy. Weight, $1\frac{1}{2}$ oz.

There is no fluid in either pleural cavity.

Lungs.—The right lung weighs 5 oz. It has a mottled appearance, areas of deep congestion surrounding bits of healthy tissue. The lowest lobe is markedly congested; but even here the congestion is not universal, certain lobules presenting a perfectly healthy appearance. On section the lung presents the appearance of a lobular pneumonia.

The left lung also weighs 5 oz. The same description applies to this lung, except that the amount of inflammatory congestion at the lower lobe is more pronounced. There is one area at the apex of this lobe which is completely hepatised, and sinks in water.

On cutting into the bronchial tubes, and exploring to the smaller ramifications, membranous casts are obtained. The internal surfaces of these tubes are hyperæmic.

Abdomen.—*Spleen* weighs 1 oz. It is firm in texture, and presents nothing abnormal on section.—*Both kidneys* are normal in size. Each weighs $1\frac{1}{4}$ oz. On section they appear to be healthy.—*Liver* weighs $13\frac{1}{4}$ oz., and its cut section shows no morbid changes.—The *small intestine* contains a small quantity of dark fæcal matter. Its coats are throughout of normal appearance. The Peyer's patches are slightly injected, and somewhat more prominent than usual.

The pancreas, adrenals, and stomach present nothing noteworthy.

Throat.—The larynx, trachea, the whole of the tongue, together with the faucial parts and the soft palate, were dissected out. This enabled a view of the floor of the posterior nares to be obtained, and the presence of a uniform deposit of pseudo-membrane was detected. On opening the larynx posteriorly, and extending the incision down through the back of the trachea, so as to expose their mucous surfaces, a continuous, thick, fibrinous deposit was found covering the epiglottis, lining the whole of the interior of the larynx and upper part of the trachea to the level of the tracheotomy wound. The trachea showed a wound through the third, fourth, and fifth cartilaginous rings directly in the middle line. The edges of the wound in the neck looked healthy.

On exposing the faucial parts to view, the tonsils, the uvula, and the surface at the root of the tongue were found to be completely covered with pseudo-membrane. There is very little enlargement of the tonsils. The posterior wall of the pharynx is also the seat of a fibrinous deposit.

CASE VI.—George M'K., aged $3\frac{2}{3}$; weight, $23\frac{1}{2}$ lb.

History of Case previous to Injection.—Patient was admitted to hospital on 26th November, 1894, at 8.35 P.M., with a history of an illness beginning eleven days previously with feverishness and sore throat. The patient's father saw a white patch about the size of a child's finger-nail on the right tonsil at this time; a similar, but smaller, speck was also seen on the opposite tonsil. There had been no marked difficulty in breathing, no croupy cough, and the only evidence of anything in the windpipe had been a slight purring sound during respiration. While at home, patient suffered from restlessness and loss of appetite, but had no sickness. He had gradually become worse, though the patches in the throat were reduced in size. He had only been confined to bed at home for the past two days.

The temperature on admission was 98.4° F., the pulse 94, and the respirations 34.

The following notes on patient's appearance and physical condition were made on admission:—

The child does not look very ill, and, although the face is pale, the lips have preserved a good colour. The skin is cool, and the tongue moist and clean. The mucous membrane of the soft palate is slightly injected. The faucial parts are intensely injected, and present slight inflammatory swelling. Large characteristic patches of diphtheritic membrane are seen on the surface of the left tonsil, as well as smaller patches on its fellow of the opposite side. The posterior pillar of the fauces on the left side is covered with a large, uniform patch of pseudo-membrane. No membrane is seen on the posterior wall of the pharynx. A quantity of mucopurulent secretion was coughed up during the examination of the throat. The cervical glands are slightly enlarged. No impairment of percussion note exists over the pulmonary area, but, on auscultation, numerous loud rhonchi are heard on the left side in front and behind. The heart's sounds are pure. The treatment adopted at this time consisted in the application of a throat spray of saturated solution of boric acid every four hours, and the administration of a mixture every two hours during the day and every four hours during the night, containing in each dose:—Liq. hydrarg. perchloridi, 10 minims; tinct. ferri. perchloridi, $2\frac{1}{2}$ minims; liq. strychninæ hydrochlor., 1 minim; glyc. acid. pepsin, 15 minims.

27th November.—Patient slept very well during the night, not being troubled much by cough. No membrane was expected.

torated. No sample of urine has yet been obtained, owing to its being voided in bed.

State of Patient at time of Inoculation.—The treatment by serum inoculation was commenced about 15½ hours after admission—viz., at 12:20 P.M., 27th November. The following notes, describing the general appearance and physical condition of the patient, were made at this time:—

Patient has no respiratory distress, and is bright in appearance. Face pallid. The throat presents appearances similar to those of yesterday—i.e., large patches of thick, white, diphtheritic membrane on the surfaces of both tonsils, especially the left, and a very considerable patch on the posterior pillar of the fauces on the left side. The heart's sounds are healthy. The pulse (112) is small and soft, but regular. The respirations (28) are quiet and regular. The percussion note is unimpaired; but, on auscultation over the right base posteriorly, a few small moist râles are heard accompanying an R.M., harsh in quality.

At 12:20 P.M., 20 c.c. of serum were injected, in two doses of 10 c.c. each, at two separate points under the skin of the abdomen.

At 2:30 P.M. two pieces of membrane, of considerable size, were coughed up immediately after the throat spray had been applied. The larger of the two fragments measured 1½ inch in length by one-third of an inch in breadth; the smaller measured three-fourths of an inch by three-sixteenths of an inch. Their shape gave no indication as to the part of the respiratory passages from which they had been dislodged. Patient's condition later in the day remained unaltered.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates for this day:—

27th November.	Temperature.	Pulse.	Respiration.
2 A.M.	102·0° F.	128	40
6 A.M.	99·4°	116	32
10 A.M.	...	...	...
2 P.M.	99·8°	100	30
6 P.M.	100·8°	99	28
10 P.M.	100·0°	132	36

28th November.—The child slept fairly well during the night, but was restless at intervals. Milk was taken well, no difficulty in swallowing being apparent. During the day the slight cough previously noted was accompanied by the expectoration of considerable quantities of mucus, but by no dislodgment of membrane. The appearances of the throat

remain unaltered. A distinct trace of albumen is noted in the urine to-day.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates for this day :—

28th November.	Temperature.	Pulse.	Respiration.
2 A.M.	100·0° F.	130	34
6 A.M.	100·2°	130	32
10 A.M.	100·4°	127	24
2 P.M.	100·2°	128	30
6 P.M.	100·4°	94	24
10 P.M.	99·6°	96	32

29th November.—A good night has again been passed. Patient this morning looks fairly well; has no respiratory distress; and his pulse, though rapid and soft, continues regular. No further coughing up of membrane has occurred. On the other hand, examination of the throat to-day shows slight extension of the diphtheritic process over the surfaces of the tonsils, which are now uniformly covered with membrane. A quantity of muco-purulent secretion was coughed up during examination of the throat. At the sites of the punctures in the abdominal wall there is an extensive appearance of ecchymosis, and round that situated on the right side slight swelling is noticed.

The following are the four-hourly records of the temperature, and of the pulse and respiration rates for the day :—

29th November.	Temperature.	Pulse.	Respiration.
2 A.M.	97·4° F.	108	32
6 A.M.	97·6°	104	28
10 A.M.	100·0°	120	30
2 P.M.	99·8°	110	28
6 P.M.	99·4°	114	28
10 P.M.	98·4°	92	24

30th November.—The patient, although still very pallid, appears otherwise to be pretty well. There is no respiratory difficulty, and the cough is neither croupy nor frequent. An improvement in the condition of the throat is apparent this morning. The extent of membrane on both tonsils is very considerably diminished, and there is no appearance of it elsewhere. Examination of the chest reveals the presence of occasional moist râles at the bases posteriorly.

The following are the records for the day of the temperature, and of the pulse and respiration rates, observed at the same intervals as formerly :—

200 DR. HINSHELWOOD—*Syphilitic Chancre on the Eyelid.*

30th November.	Temperature.	Pulse.	Respiration.
2 A.M.	98·8° F.	100	24
6 A.M.	98·4°	104	32
10 A.M.	99·0°	130	28
2 P.M.	98·8°	120	22
6 P.M.	98·6°	120	30
10 P.M.	97·6°	92	24

1st December.—The cough is now very infrequent, and hoarse, rather than distinctly croupy in character. Examination of the throat made to-day fails to reveal the presence of any diphtheritic membrane whatever. The cervical glands, however, are still definitely enlarged.

5th December.—The absence of albuminuria is observed to-day.

12th December.—Patient is allowed up to-day. The throat looks quite well. The cervical glands are still slightly enlarged and hard. The child's weight is to-day 29½ lb.—an increase of 4½ lb. over that on admission.

29th December.—Dismissed well.¹

Bacteriological Examination.—Cultivations from the throat were made on glycerine agar, and, after two days, Loeffler's bacilli diphtheriæ, mixed with streptococci, were found.

A CASE OF SYPHILITIC CHANCRE ON THE EYELID.²

By JAMES HINSHELWOOD, M.A., M.D.,

Assistant Surgeon to Glasgow Eye Infirmary; Dispensary Physician to the Western Infirmary; and Assistant to the Professor of Clinical Medicine in the University of Glasgow.

A SYPHILITIC chancre on the eyelid is amongst the rarities of ophthalmic practice. In the following case the peculiar mode of contagion imparts to it a special clinical interest, and makes it worthy of record.

The patient, Mrs. C., æt. 62, presented herself at the Eye Infirmary on 5th January, 1895. On examination, two sores of peculiar character were seen on the free borders of the right

¹ This patient was again seen and examined on 17th February, 1895—i. e., seven weeks after dismissal. He looked healthy, and exhibited no evidence of post-diphtheritic paralysis. The lymphatic glands, on the right side of the neck, under the angle of the jaw, were enlarged and indurated.—E.L.M.

² Read at a meeting of the Glasgow Medico-Chirurgical Society, 11th January, 1895.

eyelids, near the inner canthus. Each of the sores formed a semi-circle, and being in accurate contact when the lids were closed, the two segments formed a circular sore. There was considerable swelling, which was firm to the touch, and on the summit of the swelling a little ulcerated surface, which secreted a scanty, dirty discharge. The edges were prominent and indurated, and the ulcerated surface was somewhat concave. When the lids were closed this circular sore, with prominent and indurated edges, presented all the appearances of a typical hard chancre. The rest of the lid and conjunctival surface was quiet and healthy.

Both the pre-auricular and sub-maxillary glands on the right side were very considerably swollen. The pre-auricular glands were swollen to the greatest extent, and formed a very marked prominence on the side of the cheek. The swelling was hard and painless.

On consulting the senior surgeon, Dr. Thomas Reid, he at once remarked that the sore had all the characters of a primary syphilitic sore, and suggested that the patient should be put upon mercurial treatment.

On cross-examination and investigation, I elicited the following history:—She had nursed her grandchild, who died on the 24th November, 1894, aged 3 months. The child suffered badly from "snuffles" from its birth to its death. When a month old a coppery eruption appeared all over its body, but most abundantly on its buttocks. At that time, too, its mouth became very sore, and there were numerous fissures extending from the angles of the mouth. It had no regular medical treatment, and gradually wasted away till its death. The child slept with its grandmother, who did all the nursing. The grandmother was in the habit of cleaning the child's eyes in the morning, by wiping them with the finger moistened with her spittle. She was also in the habit of soothing and fondling the child when it cried, by laying its face against her own. A week after the child's death, the grandmother's eyelids began to be affected. Five weeks thereafter (5th January, 1895) she came to the Eye Infirmary. The glands had begun to swell two weeks before I saw her.

A few days later I called at her house in order to examine her in bed. I found a well marked, patchy roseola all over the body, but most marked over the abdomen and about the buttocks. I saw and examined also the child's mother, who bore no traces of syphilis, nor could any history of it be elicited from her. I learned, however, that about two years before the birth of the child, her husband had suffered

from an attack of "blood poisoning," which, I have no doubt, from the description, was an attack of secondary syphilis. There was nothing contradictory in these facts, as it is a familiar clinical experience that a mother may bear a syphilitic child without herself showing any evidences of syphilis.

The patient was at once put upon vigorous mercurial treatment. The very rapid improvement in the condition of the sore, and the speedy subsidence of the enlarged glands were very striking. She was shown at the meeting of the Glasgow Medico-Chirurgical Society on 11th January, and even after a week's treatment there was considerable improvement, and the roseolous eruption had disappeared. She has continued her treatment up to the present. I saw her last on the 13th February. The sore was completely healed, but there was distinct induration to be felt at its site. There was only very slight enlargement of the pre-auricular glands, and she had had no further symptoms. Her general condition and appearance were greatly improved by the specific treatment.

Taking all the preceding facts into consideration—(1) the character of the sore; (2) the glandular enlargements; (3) the roseolous eruption; (4) the exposure to a known source of contagion; (5) the rapid improvement under mercurial treatment—I think we are justified in regarding this case as a good example of a primary syphilitic sore on the eyelids.

The most interesting point about this case is the source of contagion. Chancres of the eyelids are most frequently caused by contact with the lips of individuals affected with syphilitic sores of the mouth. A great variety, however, of methods of contagion has been recorded. Demarres relates the case of a syphilitic patient who, on coughing, accidentally squirted some of his saliva into the eye of his medical attendant, who shortly afterwards developed a hard chancre on his eyelid, with the usual secondary symptoms following. Baudry relates two cases of hard chancres on the lids of children, whose nurses, affected with syphilis, were in the habit of cleaning the little children's eyes with their spittle. Tepljaschin has seen syphilis transmitted to the eye in a very singular way. In some parts of Russia there is a custom of extracting foreign bodies by licking the eye. In the district of Viatka, a woman, who had a reputation for this operation, communicated to seven individuals a chancre of the lids. She herself pretended that she had contracted the disease in the same way.

On looking over the literature of the subject, I have been able to find only one recorded case with a similar source of contagion. Dr. Berry, of Edinburgh, in his *Text-Book on*

Diseases of the Eye, mentions that he saw a case of a syphilitic chancre on the eyelid of an old woman, aged 84, and that the only source of infection that could be traced by him was an extremely syphilitic child whom she had been nursing.

Numerous cases are on record of nipple chancres being contracted by wet nurses suckling syphilitic children. But the present case, and that of Dr. Berry, convey this very important practical lesson that, apart from suckling, there is danger of infection from a syphilitic child, and that, when there are discharges from the nostrils and sores in the mouth, those coming into contact with the child should be carefully warned as to the dangers incurred, and as to the best means of avoiding them.

LOCAL MESSAGE IN THE TREATMENT OF CERTAIN GYNÆCOLOGICAL CONDITIONS.*

By G. BALFOUR MARSHALL, M.D., F.F.P.S.G.

MR. PRESIDENT AND GENTLEMEN,—Last October Dr. Somerville¹⁵ read before this Society an interesting paper on the application of massage in the treatment of medical and surgical cases. To-night I purpose bringing to your notice a method of treatment which, in certain gynæcological conditions, has proved of value. Its application should, however, be limited, and I am far from advocating the wide use of massage, as recommended and practised by its founder, Thure Brandt, or as carried out by others in a manner which is rightly condemned.

HISTORICAL.

Thure Brandt was at first a teacher of gymnastics, such as Dr. Somerville has described to you. On the completion of his training in the Central Institute of Gymnastics, Stockholm, he was appointed assistant, and served in this capacity during 1843-44. He then went to Norrköping, where fifty female patients were put under his care. During the following year he became acquainted with all sorts of female ailments, and developed his treatment of special diseases of women by massage.

In 1847 a man came to him suffering from a prolapse of the

* Read at a meeting of the Glasgow Medico-Chirurgical Society, 11th January, 1895.

rectum, acquired the same day. Being quite ignorant of medical knowledge, he had to use his own ingenuity. He placed the patient on his back, with shoulders raised, and thighs flexed and slightly abducted, and, shoving his right hand as deep as possible into the left iliac region, sought to get a purchase on the sigmoid flexure. By making short movements in an upward direction he was able to reduce the prolapse, and get a permanent cure. After this, he tried the same treatment on similar cases of a chronic nature, and was equally successful.

It now occurred to him to attempt the cure of prolapse of the uterus, and, to prepare himself, he began by reading up the anatomy of the female pelvis.

He got his first case in 1861, a patient 47 years old, and suffering from prolapse of the uterus of twenty-seven years' standing. The method he adopted was that of seizing the uterus through the abdominal wall, and lifting it upwards. Fourteen days' treatment cured her, and this patient still remained well twenty years later. After this he cured many cases of prolapse, and other displacements of the uterus.

In addition to the simple lifting, he began to squeeze the uterus, when enlarged, both between the hands and against the sacrum, with the idea of aiding the circulation, and found that he cured leucorrhœa and menorrhagia due to endometritis.

He noticed that the uterus was not unfrequently fixed in an abdominal position, and saw the necessity of stretching the adhesions. He was very successful in some cases, but found this was the most dangerous of his proceedings, as by using too much force he set up pelvic inflammation.

Although some cases were quickly cured, others, and of those retroflexions especially, took as long as five, and even eight and nine months—a length of time few patients would stand. He came to the conclusion that the retroflected uterus must slip from his fingers, as he carried out the lifting movement, so to enable him to fix and support it, he placed a finger in the vagina against the cervix.

Thus we have this layman, independently of others, adopting the bimanual.*

He further extended his treatment to pelvic swellings, using fine kneading movements round the affected part. In 1866 he had to massage a swelling in the region of the ovary. He supported the part by his finger in the vagina, but as he feared the tumour might contain pus, he abandoned his usual

* Velpeau, in 1845, and Matthews Duncan, in 1854, were the first to give due prominence to the value of the bimanual.

kneading movement for a circular rubbing action. After this he practised both forms of movement on peri- and para-metric exudations under the name "Doppeldruck," literally "double pressure." This he practised till 1874, after which he only carried out the circular rubbing movement with increasing and diminishing pressure, and adopted the term "massage." In addition to local treatment a systematic course of gymnastics was prescribed, the movements being both active and passive.

In some cases he adopted hydropathic treatment, the body being rubbed with tepid water, and dried by the simple pressure of a towel, friction being avoided. This was followed by rest in bed, or open-air exercise.

Following the example of his pupil, Dr. Nissen of Christiania, he continued massage during menstruation, and has practised this with advantage since 1874.

In 1887 he introduced the interrupted lifting movement of the uterus, with both hands externally, especially in cases of prolapse, and with better results.

Several cases have, however, proved incurable in his hands.

It was 1871 before his work was recognised by any gynæcologist, when Dr. Sköldberg visited him, and, impressed with his results, got him to go to Stockholm. Dr. Sköldberg died a year later, and Thure Brandt worked away unrecognised by the medical faculty for other fourteen years.

In 1886 Dr. Profanter took him up, and arranged for him to go to Jena with Dr. Nissen, where their methods of treatment might be put to a thorough test, under the observation of that great gynæcologist, Bernard S. Schultze. As a result of this visit, Profanter¹⁰ published a work in 1887 on the subject, to which Schultze wrote a preface.

Since then massage is a recognised method of gynæcological treatment, and is to be found mentioned in the leading textbooks. Brandt¹ has himself published his methods, a second edition of his book appearing in 1893, and he has added much important, while leaving out what later experience had shown to be useless.

Brandt's massage has been modified by different gynæcologists, and not always for the better, but the methods I shall now speak of are those, as I learned them in the Berlin Charité Klinik, and as carried out by Dr. Dührssen and his pupils. Dührssen specially visited Stockholm in 1890 to study Brandt's methods, and these he has since simplified and perfected.

DÜHRSEN'S METHODS.

A special low couch is used with both ends raised, and sloping. The patient lies in the dorsal position, with head and thorax supported at one end, while the pelvis and flexed limbs rest on the other. Thus the lumbar region lies on the horizontal middle piece, the back acquiring a curved shape.

The patient's arms lie quietly at her side, while respiration is carried on easily with the mouth open. Before lying down the garments are all loosened, so that the hand can be applied to the skin of the abdomen. You sit facing the patient, and passing the left arm under her left thigh, place one or two fingers in the vagina, and rest the elbow on the raised end of the couch. The part to be massaged is raised, and supported by the vaginal fingers, while the right hand describes gentle circular rubbing movements till the contractions of the abdominal muscles are overcome, and the intestines displaced. It is astonishing how easily the muscular contractions are often overcome. Needless to say, the bowels and bladder should be empty, and to ensure this, the forenoon is the best time for massage.

Apart from massage, this position of the patient, and this form of couch, are very valuable for ordinary gynecological examination, as the whole pelvis can be mapped out without changing your position, and the ovaries can often be felt, when examination, even on Veit's chair, has failed. Moreover, there is no raising of garments, and no exposure, so that the most sensitive patient cannot object on this ground.

Indications for Massage.—The class of cases for which massage is especially suited are those, the results of peri- and para-metritis—*e.g.*, peri- and para-metritic exudations, and displacements of uterus and annexa, especially when fixed in their abnormal positions; breaking down or stretching adhesions; stretching cicatricial bands in the parametrium.

I do not think the results for prolapse are good.

Contra-indications.—Pregnancy; acute inflammation; malignant disease; purulent collections in the tubes (pyosalpinx), or in encapsuled spaces, &c.

Endometritis: Brandt treats this by massage, but it should always be cured before massage is commenced for other conditions.

METHODS EMPLOYED.

- I. Forcible separation of perimetritic adhesions.
- II. Traction massage.
- III. Massage proper, or bimanual massage.

I. *Forcible Separation of Perimetritic Adhesions.*—It is to Schultze¹² that we owe the introduction of this method of treatment, for freeing adherent ovaries and uterus, in a manner only accomplished by laparotomy. Laparotomy has frequently been done for adhesions, with subsequent ventral fixation of the uterus, and in severe cases implicating the annexa, by removal of tubes and ovaries.

Massage has this great advantage over operation, that you avoid the risk of a fatal result, the sterility which removal of the ovaries implies, and the after danger of ventral hernia. Moreover, operation leads to the formation of peritoneal adhesions.

Schultze divides peritonitic adhesions into two classes—vascular and non-vascular. For those which are vascular he prescribes simple massage, as they are absorbable, but for the non-vascular, stretching or separation. An exact diagnosis of the nature and extent of the adhesions must first be made, and further confirmed under chloroform narcosis.

Schultze employs the recto-abdominal bimanual method, and strips the adhesions off the uterus, or separates them as near that organ as possible. I have used the ordinary vagino-abdominal bimanual, according to Dührssen's teaching, and found it sufficient. The adhesions are forcibly stretched, and finally felt to give way, and if it is a case of retroflexio fixata, the uterus can usually be brought into anteversion. The following case illustrates this:—

Mrs. H., æt. 42, six years married, sterile. Had more or less leucorrhœa for several years.

Complaint.—Pain in back and side, dysmenorrhœa, leucorrhœa, menorrhagia, and defæcation troubles.

Examination showed retroflexio fixata, endometritis, endocervicitis, and the adhesions could be distinctly felt.

I curetted the uterus, and during the next three weeks gave six iodine intra-uterine injections. She was then chloroformed, and the adhesions broken down. The uterus, being brought forward, lay normally anteverted, and remained so with a vaginal pessary. Patient has since remained well, and the uterus lies normally.

It may be that the adhesions are of such a nature that they cannot be thus separated, and we fall back on massage, which gradually stretches them, and later, lets us separate them. It may be, also, that the patient refuses chloroform, so that no attempt can be made to break down adhesions. This was the case in one of the Charité patients whom I managed, who had extensive adhesions of the uterus and annexa, the uterus being retroflected and firmly fixed. It was months before the uterus was freed and brought into ante flexion.

Cicatricial bands in the parametrium cannot, of course, be dealt with thus, and must be gradually stretched. Of its benefits there is no doubt, and Schultze writes in the preface to Profanter's work ¹⁰:—"I am convinced that massage of the pelvic organs, especially Thure Brandt's method, gives excellent results in the stretching and separation of old parametric fixations of the uterus."

II. Traction Massage.—Dührssen's method is a modification of Säger's ¹¹ interrupted, and Chrobak's ² continuous, traction massage. It is carried out in either of two ways.

(1.) With the patient in the dorsal position, a vulsellum is fixed to the posterior lip of the cervix, and traction made under increasing and diminishing force, or, on the other hand, steady traction is kept up—the sittings lasting five minutes, and being repeated every two or three days.

(2.) In the prolonged method there is attached to the vulsellum a rubber band, which is in turn tied to the foot of the couch or bed. The band is sufficiently stretched to keep up continuous traction for two hours or so. The patient must be warned against moving, as if she slips down, the stretched rubber is thrown out of action. On the other hand, I saw bad results in a patient who had worked upwards and increased the traction.

It is chiefly indicated in a retroposed and pathologically ante flexed uterus, with its symptoms of dysmenorrhœa and sterility. In this condition there has been a parametritis posterior—i.e., cellulitis in the folds of Douglas, the resulting cicatricial contraction shortening them, and pulling the uterus upwards and backwards. I have found such cases so quickly benefited that the next menstrual period was free from dysmenorrhœa. The method is rather painful, but the results are good, and may well be tried in this class of troublesome cases. A patient who objects to bimanual massage can only complain of the pain and discomfort, and not the method.

III. *Bimanual Massage, or Massage Proper.*—This is carried out in the manner previously mentioned, the vaginal fingers being held steadily, while the other hand performs circular movements under increasing and diminishing pressure.

Many cases of retroflexion are further benefited by lifting the uterus. The vaginal fingers shove the uterus upwards and backwards as far as possible, and then bimanually it is pulled thence forwards and upwards. This has the effect of successively stretching the different uterine ligaments, and stimulating their muscles to contraction.

This method of lifting the uterus was first done by Dürrssen, and is better than that carried out by Brandt,¹ who requires an assistant, Sielski¹⁴ who was a sound, or Pawlik⁹ with his special elevator.

TREATMENT OF SPECIAL CONDITIONS.

Retroflexio Uteri Fixata.—The treatment of peri- and para-metritis, and of displacements of uterus and annexa, is an important one, as a “*circulus vitiosus*” is established. Inflammatory adhesions lead to displacements. Displacements interfere with the circulation, cause congestion, and in turn may set up perimetritis, leading to adhesions.

Brandt,¹ in treating fixed retroflexion, aims at avoiding pain, and gets his results entirely by massage, and without attempting to separate adhesions after Schultze’s¹ method. He massages the whole pelvis till the patient is no longer sensitive. Then for the first time does he begin to stretch the adhesions, avoiding force, as he is afraid of setting up inflammation around the uterus, a result he experienced in some of his earlier cases. When the adhesions are at last fully stretched, and the uterus movable, he replaces it daily, does massage, combined with his lifting movements, till at last it lies correctly, for he avoids all pessary treatment.

This method is carried out by Döderlein,³ who, in addition, forcibly flexes the uterus between the hands. It is evident that this method is a slow one, and requires many sittings.

A quicker and better result is got by separating adhesions under chloroform, and placing a pessary in the vagina. In cases complicated with parametritic contractions, these require further massage to stretch them, as the uterus probably still lies abnormally in the pessary. These cases are the most satisfactory to massage, as the uterus forms a good support for our fingers. Not only do we pull on the uterus in break-

ing down the adhesions, but, in stretching cicatricial bands, we can force the organ over towards the opposite side.

The following case illustrates this:—

Mrs. G., æt. 28, pain in back and pelvis, dysmenorrhœa, severe dyspareunia, and pain on defæcation. Twice curetted for endometritis. Illness dates from birth of second child, four years previously.

Condition.—Uterus retroflected and fixed, sinistroposed by cicatricial bands in left broad ligament. Left ovary enlarged, very tender, and lies in pouch of Douglas under uterus.

Adhesions broken down under chloroform, uterus brought into antelexion, and a Thomas pessary placed in vagina. Five days later I commenced massage, uterus being retroflected and sinistroposed. There was great tenderness, which abated by the third day, so that uterus could be bimanually replaced. Next day the tenderness was gone. The uterus was always bimanually replaced before massaging, and the value of not using a sound for doing this is shown by the fact that she became pregnant within a fortnight.

The sittings lasted ten to fifteen minutes daily. After sixteen sittings the uterus lay normally in the pessary, was freely movable, and could be pushed over to the right side past the middle line. The sittings were stopped two days later from suspicion of pregnancy, as she was a week past her usual period. This proved correct. Marital relations had been resumed about the time massage had ceased to be painful, and caused no trace of pain or discomfort.

Stocker¹⁶ recommends massage by replacing the retroverted uterus with a Playfair sound dipped in 5 per cent carbolic glycerine. The sound is held steadily, while the other hand massages against it. This I think not a good method, as you lose the value of touch, may injure the uterine cavity, and prevent conception.

Massage is not always successful, and a uterus may still be retroflected, even after all adhesions and cicatricial bands are thoroughly stretched, and a pessary put in the vagina. The pessary may, however, be sufficient, by giving a support, as a retroflexion of itself may exist without giving rise to any symptom. There is, however, always the risk of adhesions forming and fixing the retroflexion; but in these cases we can fall back on the operation method of vaginal fixation of the uterus, and this treatment is always before us where a patient refuses massage, and a pessary is of no use.

Peri- and Para-metric Exudations.—In these conditions the treatment by baths, compresses, douches, medicated

tampons, &c., is often successful in causing a more or less rapid absorption. Where it is not rapid, it may be greatly hastened by massage, commenced in two to three weeks after the temperature has fallen. It must not be lightly undertaken, and we must exclude pyosalpinx and other centres of suppuration. If there is any doubt in the diagnosis, massage lightly for a few days, till the patient becomes tolerant to examination—permitting the existing conditions being more accurately made out. The usual routine treatment should at the same time be carried out. Should the temperature rise we must at once cease, and wait a sufficient time.

When abscess formation has previously existed, massage must on no account be done, as it may again cause suppuration, as cases mentioned by Olshausen³ and Dührssen⁴ show.

Ovaritis, Periovaritis, and Adherent Ovaries.—The pain and tenderness soon disappear, and chronically inflamed ovaries will after several sittings permit of handling in a manner which at first caused great pain.

In freeing fixed ovaries we must not pull on them, but manipulate round them, and endeavour to stretch and separate the adhesions.

Massage of the ovaries is most disappointing, as after freeing them we cannot fix them in position, and they are liable to form new adhesions with a return of old symptoms.

If new adhesions are found they are, however, readily removed in one or two sittings, and such cases should be watched to prevent the ovaries becoming too firmly adherent again.

How long should we Massage?—Patients will often wish massage discontinued when all symptoms are gone, as they see no benefit from further treatment. We must not be persuaded to stop too soon, and our guide should be not the symptoms, but the condition of the pelvic organs. Not till adhesions and parametric bands are so stretched, that the organs are fully movable, and can be brought or retained in their normal position, can we consider the sittings completed. To stop too soon means speedy relapse, and this is the cause of failure with not a few.

Treatment should be done daily, as by missing a day, the adhesions, and especially the cicatricial bands, contract again, and the sittings are thus prolonged. This is the great disadvantage of the compulsory interruption at menstruation. Fortunately, many cases can be cured between two menstrual periods.

Massage during Menstruation.—In cases requiring more prolonged treatment it is exceedingly valuable to massage during menstruation, as no ground is thus lost, and the tissues being more spongy, permit of more rapid progress being made.

Brandt and others do it regularly, and it was done in the Charité cases, but we would not get our patients here to submit to it, and certainly not our private cases, for all feeling is against it.

Effect on Constipation.—A most noticeable advantage of pelvic massage is the cure of obstinate constipation, which has resisted medicinal treatment.

Opponents of Massage.—Massage has many opponents, and more especially in this country. Thus, in Hart and Barbour⁶ I read, "We believe that there are great difficulties in the way of its general acceptance. The chief one is that it involves undue manipulation of the genital organs. This is a most serious objection, and one which will in all probability be fatal to the method. Then, again, the manipulation will be dangerous if the diagnosis be wrong—e.g., if a pyosalpinx be chosen for it. There is thus every prospect of its being supplanted in a few cases requiring it by abdominal section."

It is not my intention to enter into any discussion, but I should like to notice one or two objections. Kugelmann⁷ and others urge that it is a form of onanism. This can only apply to the very objectionable method of massaging with the vaginal fingers adopted by some, and certainly contrary to the teaching of Brandt and others.

If the vaginal fingers are kept quite steady, as they ought to be, then massage is not much more than a prolonged bimanual examination.

Harm may certainly be done in unskilled hands, and where an exact diagnosis has not been made, but this applies to any branch of medicine or surgery. The chief harm has been done by the over sanguine or ignorant applying massage to all gynaecological troubles, even tumours and ectopic gestation, and Dührssen⁸ quotes a case where an ovarian tumour was massaged, leading to suppuration, general peritonitis, and a large hæmatosalpinx.

As regards abdominal section supplanting the few cases requiring it, I have mentioned this subject before. If I had to choose between the risk of a laparotomy, and massage, which, if it fails, still leaves operation open, I should certainly first try the latter.

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THE DIAGNOSIS AND TREATMENT OF GLAUCOMA.¹

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GENTLEMEN,—I shall begin to-night with a brief account of three cases of glaucoma, which may be taken as exhibiting the disease in its typical forms. The first is that of an old woman, blind in both eyes, whom I saw in consultation in 1888. Three weeks before I saw her she had gone to bed, apparently quite well, but had, about midnight, been awakened by very severe pain in the forehead and left eye. Almost

¹ A paper read at a Meeting of the Eastern Medical Society, on 13th February, 1895; and illustrated by lantern slides, and specimens.

immediately after the onset, the eyeball became acutely inflamed, and felt as if it were too large for the socket; the eyelids were very much swollen; there was profuse lachrymation; and the sight of the eye became very dim. The pain, accompanied by feverishness and persistent retching and vomiting, increased, and in the course of two hours the right eye became similarly affected, and within twelve hours the vision in both eyes was completely gone. By the time I saw the patient, her suffering had considerably abated, and the swelling had disappeared from the eyelids, but the eyeballs were of stony hardness. There was extreme congestion and œdema of the ocular conjunctiva, which presented a dusky red colour; the surface of the cornea was rough and nebulous, and quite insensitive to touch; the irides were discoloured; the pupils were dilated, oval-shaped, and irresponsive to light; in each eye the anterior chamber was very shallow; and vision was gone beyond the possibility of restoration by operation or any therapeutic procedure. Here we have a clinical picture of glaucoma in its most terrible aspect; after a single inflammatory attack, appearing with overwhelming suddenness, vision is totally and irrevocably lost.

Such cases are, however, fortunately rare, and the more usual form of inflammatory glaucoma is well shown in the next case I shall describe. The patient was a lady of between 50 and 60 years of age, who had been seized during the night with what was thought to be a severe bilious attack, accompanied by very acute pain in the left eye, and radiating from the eye along the branches of the fifth nerve of the same side. The doctor in charge of the case had, on the supposition that he was dealing with iritis, used atropine; but after each instillation the pain increased, the inflammatory symptoms became more severe, and the vision of the eye was so much affected that by the end of two days there was only a bare perception of light. The suffering was most intense; there was deep livid injection of the ocular conjunctiva, and the cornea, besides showing a smoky cloudiness, was so insensitive that it could be touched with a feather without the patient's knowing; the pupil was widely dilated, the anterior chamber shallow, and the tension of the eyeball very markedly increased. Eserin was freely applied, and as soon as the pupil was sufficiently contracted a large piece of the iris was excised, with the pleasing result that the pain subsided almost at once, and vision slowly returned until, with a glass adjusted to correct the long sight of the patient, it reached

one-third of the normal standard of acuteness.¹ Ophthalmoscopic examination now showed the optic disc to be of fairly normal appearance, with no pathological "cupping," but there was distinct pulsation and marked congestion of the retinal veins. The right eye was, so far as could be made out, normal in every respect, except that there was a high degree of hypermetropia.

Cases of glaucoma also occur—simple chronic glaucoma—which, from beginning to end, present no inflammatory symptoms whatever, and of this form the case of Mrs. J., a frail woman of 60 years of age, is a typical example. Two years before I saw her she had received a blow upon her right eye from a piece of wood, and from that time she dated the onset of her defective vision. She practically suffered no pain in either eye, nor had there ever been any symptoms of inflammation, but sight had slowly and steadily diminished till she could not distinguish light from darkness. Subjective sensations of light, however, caused much annoyance, and often, during the night, proved so troublesome as to disturb the patient's rest, and so vivid as to make her afraid. Both eyeballs were hard to the touch; congestion and tortuosity of the episcleral veins were markedly present, though otherwise the conjunctiva retained its transparency, and the sclerotic its pearly whiteness; the cornea was smooth and clear, but insensitive to touch; the iris was discoloured, and at parts atrophied; the pupil was irregular in its outline, and partially dilated, and presented the usual characteristic greenish reflex; and the anterior chamber was shallow. On ophthalmoscopic examination, it was seen that the lens in each eye was becoming cataractous; the optic discs were of a greenish-white colour, and deeply cupped; there was pulsation in the retinal arteries, and the veins were large and tortuous.

These, then, are examples illustrating clearly three fully developed types of glaucoma—the acute inflammatory or glaucoma fulminans, the subacute or chronic inflammatory, and the simple non-inflammatory—as it occurs as a primary disease. Once glaucoma has become thoroughly established there is not much difficulty in its diagnosis. The stages most apt to be overlooked are the early ones; and, as successful

¹ It is now nearly four years since I operated upon this patient, and I have not seen her since; but I heard recently that, although she has kept quite free from pain, the vision has gradually deteriorated, and within the last few months premonitory symptoms of glaucoma have appeared in the other eye.

treatment depends for the most part upon early recognition, it is essential that a clear and accurate conception be formed of the symptoms of which a patient whose eyes are about to become glaucomatous will complain.

The symptoms in the premonitory stage, whether of long or short duration, are transient, and may unfortunately be disregarded. As one who was suffering from sub-acute glaucoma, and in whom the premonitory symptoms, lasting over a period of two years, had been very characteristic, said to me the other day, "I thought nothing of them, as they just passed away." That being so, it is all the more necessary that the medical attendant should be quick to appreciate, and appraise at their proper value, remarks regarding eyesight, seemingly trivial, but often in reality of the gravest significance, made by a patient in a casual manner. In particular, it is always necessary to pay heed when—(1) a patient states that he every now and then suffers from temporary obscuration of vision—that he seems for the time being to see everything through a fog—even although when tested by the ordinary methods the visual acuity is found to be quite up to the normal; (2) if the patient requires to use spectacles, it is very suspicious if he says he has had to change them frequently, and he is found to be using glasses much more powerful than ought to be necessary at his age; (3) when he sees coloured rings round a gas or candle flame—an appearance which must be familiar to all who have driven in a cab on a frosty night and looked at the street lamps through the steamy windows. Usually while these symptoms last the patient complains of dull pain in the eyes and forehead, and he may be conscious that both his central and peripheral vision are defective; but it is only when his medical attendant chances to see him during an attack that any objective signs of glaucoma can be detected. It is then found that the eyeballs are harder than normal, and that the cornea is more or less cloudy. There may be slight dilatation of the pupil, but as a rule there is no diminution in its response to the stimulus of light, and the iris presents a normal appearance. There may, or may not, be some slight pericorneal injection and overfulness of the episcleral veins. The proper tests will show that the extent of the visual field is contracted, and the limitation will be most marked on the nasal side. Ophthalmoscopic examination will reveal congestion, and perhaps increased tortuosity of the retinal veins; and pulsation in the retinal arteries, if not present, can always be produced by slight pressure upon the eyeball. Attacks such as these, in the

intervals of which the eye is to all appearance healthy, may last from a few minutes to several hours; but the periods between them get gradually shorter and shorter, until at length the condition of the eye is one of permanently increased tension with the changes consequent upon it, and glaucoma is then thoroughly developed.

Once established and allowed to run its course, unchecked by treatment, the natural tendency of the disease is to take on one of the forms already described, and sooner or later to produce complete loss of vision. Even after the patient has become absolutely blind, degenerative changes proceed. Subjective sensations of light, as in case No. 3, may continue to torment the patient and encourage a delusive hope that sight may yet be restored; or attacks of pain may again and again recur, until consent is given to the removal of the eyeball. These degenerative changes affect the cornea in a very striking manner. Its surface may become opaque, with the epithelium here and there raised in blisters; or it may, as in the case of a man aged 76 who was under my care three years ago, become completely necrosed and separate as a slough. The iris becomes atrophied and forms a narrow rim around its ciliary attachment, the lens is cataractous, and there are staphylomatous projections from the sclera, most frequently in the equatorial region of the eyeball. Finally the tension inclines to diminish, and complete atrophy of the eyeball takes place, and then, but not till then, will the patient be free from pain and discomfort.

ÆTIOLOGY AND DIAGNOSIS.

Glaucoma is a disease of senility, rarely met with in persons under 40 years of age, but often seen in those over 60. It attacks women more frequently than men, and this extreme liability of females, more particularly to the inflammatory forms of the disease, is in many cases intimately connected with the cessation of the menses. Both eyes are usually affected, but, as a rule, not simultaneously, as months, perhaps years, may elapse before the second is attacked; and it may be stated generally that the more acute the disease in the one first involved, the shorter will be the interval before the other suffers; while, on the other hand, if the disease in the first eye be non-inflammatory, the longer is the second eye likely to escape.

Glaucoma shows a special predisposition to attack certain races. It is more common in England than in Scotland, and

seems to be particularly frequent among the Egyptians and the Jews. It is often hereditary, and, when it is so, generally appears at an abnormally early age. At present I have under my care a woman in whom the first symptoms appeared when she was 34 years of age, and whose mother, brother, and four cousins on the maternal side all suffer from the same cause—every one of them, except the brother, having been blind for years. Persons who are long-sighted suffer more frequently than those who are short-sighted; but in this connection it must be borne in mind that, as Donders has shown, just about the period of life at which glaucoma is most apt to occur, acquired hypermetropia is very common. Patients frequently attribute the onset of glaucomatous symptoms to some injury, but there is rarely any ground for this assumption. In such cases the eye must be regarded as predisposed to attack, for in most of them the injury has been very trivial—so slight, indeed, as to have been forgotten till recalled to mind by the failing sight. Of much more importance, from an ætiological point of view, are certain constitutional states, more particularly the rheumatic and the gouty. It is well known that anything that depresses and disturbs the action of the heart predisposes to glaucoma, and an attack may in many instances be clearly traced to some mental distress or moral shock; to the injurious influences of cold or of hunger; to fatigue, the result of worry or of sleeplessness; or there may be associated anæmia, lithiasis, bronchitis, constipation, or the suppression of some habitual discharge. In eyes predisposed to the disease there is probably always an abnormal rigidity of the walls of the blood-vessels, and consequently alterations in the intra-ocular circulation will be all the more readily produced. A familiar example of this is seen in the glaucomatous attack which occasionally comes on after atropine or other mydriatic has been instilled into the eye of an elderly person. But, whatever may have been the determining cause, whenever a disturbance in the equilibrium between the processes of secretion and excretion takes place within the eyeball, a rise in the intra-ocular pressure at once follows, and this increase of tension is the essence of the disease: as Priestley Smith defines it:—“An excess of pressure within the eye *plus* the causes and consequences of that excess.” The first and most important symptom, therefore, is increase of tension, and from it arise all the other phenomena which go to make up a picture of primary glaucoma. Many instruments have been devised for estimating the amount of the intra-ocular pressure; but in practice nothing is so satisfactory as the educated finger of

the surgeon, and there is always a standard of comparison in the sound eye of the patient, where only one is affected, or in the practitioner's own eye.

It is characteristic of many cases that this increase of tension is intermittent; but whenever it has existed for any length of time there follow:—

1. *Alterations in the Cornea and Sclerotic*.—Sudden increase in the intra-ocular pressure is shown by a diffuse cloudiness of the cornea, most marked towards the centre, and specially characterised by the fact that it passes off almost immediately after the excessive tension has been relieved. This appearance has been shown to be due to œdema, and to it must be attributed the occurrence of the iridescent vision. As the anatomical seat of the fluid which causes the œdema is in the nerve channels in Bowman's membrane, the corneal nerves get pressed upon and paralysed; and this explains the more or less anæsthetic condition of the cornea found in nearly every case. Owing to its rigidity, the sclerotic in the adult is not much influenced by pressure, except at its weakest part—the lamina cribrosa—or in old cases of absolute glaucoma when it occasionally happens that staphylomatous projections form at any part where the sclera has been weakened by injury, and in the equatorial region of the ball. When, as a result of intra-uterine disease, or after ophthalmia neonatorum or other inflammatory affection occurring during the first years of life, there is an increase in the intra-ocular tension, the tissues of the eyeball yield very readily, and the globe may become enormously distended. The large bulging cornea—in some cases clear, in others opaque—has given to this disease its special name—buphthalmos, or ox-eye; but in reality it is simply the glaucomatous process occurring in very early life.

(To be continued.)

CURRENT TOPICS.

MEDICO-LEGAL POST-MORTEM EXAMINATIONS IN SCOTLAND.
—On Friday, 15th February, 1895, in the House of Commons, Sir James M. Carmichael asked the Lord-Advocate whether, in cases in which *post-mortem* examinations are made by direction of the Procurator-Fiscal on behalf of the Crown for the information of the Lord-Advocate as public prosecutor,

persons suspected of having caused the death by criminal or other means, or medical men who have had charge of the case prior to death, are granted facilities for being medically represented at the *post-mortem* examination ordered by the Crown; and whether, in such cases, applications on behalf of interested persons for medical representation at the *post-mortem* are ever refused.

In reply, the Lord-Advocate said—Such *post-mortem* examinations are conducted in accordance with suggestions made by medical men of great eminence a number of years ago, and the practice is to exclude from the examinations all persons not officially connected with them, unless the consent of Crown counsel or the authority of a sheriff for the presence of other persons has been obtained. The examinations are generally held under a judicial warrant, and the view adopted and acted upon has been that, unless some special reason connected with public justice exists for the presence of third parties, the warrant should be carried out exclusively by persons acting under public responsibility. Applications to be allowed to be represented have been granted where made on behalf of persons suspected of having caused the death, or otherwise closely connected with the matter of inquiry, but they have been refused where some such quality of interest did not exist.

On the same occasion Sir James Carmichael also asked the Lord-Advocate whether, in cases of *post-mortem* examinations made by direction of the Procurator-Fiscal on behalf of the Crown for the information of the Lord-Advocate as public prosecutor, such examinations are frequently conducted by only one official medical man, notwithstanding the circumstances that, in the event of the case coming to trial, the evidence of two medical men is necessary to prove the report.

In reply, the Lord-Advocate said—Experience has proved that there are many cases in which it is quite unnecessary that two medical men should conduct the *post-mortem* examination.

We agree with our contemporary, the *British Medical Journal*, of 23rd February, 1895, that the Lord-Advocate's answers, as recorded above, are not altogether satisfactory, especially as regards the presence of two medical men at all examinations ordered by the Crown. However, it is satisfactory to learn that there is no fundamental objection to suspected persons being represented at Crown *post-mortem* examinations, and that, on application to the sheriff, permission to be so represented is not likely to be refused. What is now wanted is such a reform in the administrative procedure of

our Scottish criminal law, at least in Glasgow, as to allow practical advantage to be taken of this privilege, to which all suspected or closely interested persons are entitled.

UNIVERSITY OF GLASGOW—NEW LECTURESHIPS.—The University Court has instituted two new Lectureships—one on Diseases of the Ear, the other on Diseases of the Throat and Nose. To the former Dr. Barr, and to the latter Dr. Walker Downie, have been elected. We congratulate the University on the new appointments, in which we recognise the beneficial results of the healthy rivalry of a flourishing extra-mural school.

THE ANTITOXIN TREATMENT OF DIPHTHERIA is occupying much attention in all professional circles, and in Glasgow no less than elsewhere. This month we publish an article by Dr. Marsh on the Belvidere experience of the remedy, and a few months ago we had a paper on the general question from the pen of Dr. John Macintyre. Towards the end of last month the subject occupied the attention of the Eastern Medical Society, and in March a formal debate on the matter is being arranged for in the Medico-Chirurgical Society. It is yet too early to speak with any certainty as to the value of this new remedy, but, of the six cases reported by Dr. Marsh, it will be seen that three succumbed in spite of its use. The publication of a series of carefully recorded cases, such as those appearing in our pages this month, would before very long enable a definite pronouncement on the merits of the treatment to be made.

SOCIETY OF MEDICAL PHONOGRAPHERS.—In our September number of last year (p. 223), we had pleasure in drawing attention to the first number of this Society's publication—*The Phonographic Record of Clinical Teaching*. Subsequent issues which have since appeared maintain its high level of excellence, and the subjects treated of in the various articles have been chosen to illustrate, not only medical, but also surgical and special branches of practice. It is satisfactory to learn that the Society itself steadily increases in its membership, which now numbers over one hundred. Hitherto Glasgow and the West of Scotland have supplied only a very small proportion, indeed, of that number, but we would hope that there are many practitioners and students among our readers who are familiar with shorthand, and who only need to have the Society brought to their notice to induce them to

avail themselves of its benefits. The Society's publications, being printed in shorthand characters, will maintain and increase their familiarity with phonography. It is intended shortly to publish a supplementary issue, referring specially to the use of shorthand by the medical student. That its use is not limited to student days will be readily admitted by many a practitioner who has been enabled by its means to keep records of his cases, even through a busy professional life. The annual subscription to the Society is 5s.; for students, 3s.

REVIEWS.

The Anatomy of the Nasal Cavity and its Accessory Sinuses.

By DR. A. ONODI; Translated from the Second Edition by ST. CLAIR THOMSON, M.D. Lond. London: H. K. Lewis. 1895.

WITHOUT a thorough knowledge of the anatomy of the nasal cavity and its accessory sinuses, it is impossible to deal satisfactorily with intra-nasal diseases. Many cases present themselves in which the diagnosis can be established only after a careful consideration of the anatomical relations of the affected area, and it is evident that, to operate in a region separated from the brain, often by only a thin easily broken bony partition, perfect familiarity with its topography is indispensable.

Anatomical preparations of the nasal cavities are seldom available for purposes of study, and recourse must usually be had to illustrations; but, neither in works on general anatomy nor in the text-books on diseases of the nose are these sufficient. An atlas, such as Dr. Onodi's, is therefore welcome, and an English edition particularly so, as we have no similar undertaking in the language.

A concise description precedes the plates, which are sixteen in number. They represent the parts as seen in sections made in various planes; they have been well selected, and should give a clear idea of the relations of the parts.

In Plate 3, what is indicated as the opening of the maxillary sinus, is merely an accessory orifice, present in about every tenth head examined. The constant ostium maxillare lies concealed in the infundibulum, and the author might, with advantage, have included a plate showing the infundibulum after the uncinate process had been cut away.

Dr. St. Clair Thomson's translation is excellent, and he has enhanced the value of the work by amplifying the explanations facing the plates. The book is attractively got up, and in its English garb presents a marked contrast to the poverty-stricken appearance of the German original.

Methods of Operating for Cataract. By SURGEON-CAPTAIN G. H. FINK, H.M. Indian Medical Service. London: J. & A. Churchill. 1894.

WE understand that at the English Universities an effort is being made to ensure that the undergraduates have a competent knowledge of their own language. Judging from the small volume now before us, the gentlemen who have the charge of admission into the Indian Medical Service might take action in a similar direction. Many of the author's sentences are rambling and obscure, almost to the verge of being incoherent, and defy the ordinary rules of analysis. When will publishers have such a regard for their own name that they will insist on the books which they publish being revised by some competent man?

Apart altogether, however, from these defects, the contents of the book seem to us of small importance. The two items of most general interest are a description of the author's lid speculum and the statistics of some 500 cases of cataract operated on by him. Although the book is called "*Methods of Operating for Cataract*," the only method which is described is extraction.

The speculum described is certainly a very good one, and seems admirably adapted for the purpose.

Surgeon-Captain Fink's statistics are such as to show him to be an expert operator, and are in every way a credit to him. It is to be regretted, however, that he does not tell us what degree of restored vision he calls a cure, and what degree he classifies as relieved. The author's operation is a good ordinary one, and the care he takes to avoid sepsis is worthy of praise. In these particulars, however, he only differs from other surgeons in very minor details.

We fail to see what earthly effect the administration of iodide of potassium and Dover's powder can have on cortical masses left in the anterior chamber. We also think that he is wrong in supposing that such masses can set up an iritis. True plactic iritis is to us nothing less nor more than a manifestation of sepsis, and is not due to the much-dreaded

bruising of the iris. The danger of cortical matter is traumatic glaucoma.

How opium and quinine can influence a case in which there has been escape of vitreous is also a puzzle. To us, such treatment is suggestive of the relics of past ages, and is likely soon to be as much a matter of history as the researches of Dr. Kite into the properties of Botany root.

Diseases of the Throat, Nose, and Ear. By PETER M'BRIDE, M.D., F.R.C.P. Ed. Second Edition. Edinburgh and London: Young J. Pentland. 1894.

THIS book was favourably mentioned in these pages on its first appearance, early in 1892. The second edition has just been issued, the early publication of which not only shows that the book has received that hearty reception predicted for it, but that the profession generally recognises the increasing importance of acquiring a knowledge of the diseases affecting the throat, the nose, and the ear.

Several additions have been made to the subject matter in this edition, notably in that section devoted to the diseases of the ear, in which department our author is not only seen at his best, but is apparently most at home.

In the article on diphtheria, which is said to have been carefully revised and brought up to date, no mention is made of the serum treatment which for twelve months has occupied so prominent a position in current medical literature at home and abroad. Perhaps the lack of personal experience on the part of the author explains the absence of antitoxin from the list of remedies employed. Still, one looks for some mention of the labours of Behring and Roux in an important work on the subject, even although the place which the serum from the immunised horse may occupy in the therapeutics of the future is yet uncertain.

Pachydermia of the larynx is one of the new subjects introduced into the new edition. This condition consists of a thickening of the pavement epithelium on the vocal cords and inter-arytenoid membrane as a result of long-continued chronic laryngeal catarrh. The descriptions given by our author, however, are both indefinite and confusing, and the coloured diagrams illustrating the situation and appearances of the lesions resulting are misleading. In illustration of this contention a short quotation will show:—"In inter-arytenoid pachydermia the diagnosis is not difficult. It must here be mentioned, however, that certain authors seem to class as

pachydermia the thickenings found in the posterior wall of the larynx in certain cases of syphilis and phthisis. There can be no doubt that pathologically this position can be justified." The reader is left to arrive at a diagnosis as best he can as to whether the outgrowth or the inter-arytenoid wall be a simple pachydermia laryngis, a tubercular, or a syphilitic lesion.

Greater care appears to have been taken in the revisal of the text, and the many typographical errors present in the first edition have, we are glad to see, been removed, enhancing the value of this handsome volume.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1894-95.

MEETING IV.—11TH JANUARY, 1895.

PROFESSOR MURDOCH CAMERON *in the Chair*.

I.—PATIENT WITH CHANCRE OF THE EYELID.

BY DR. HINSHELWOOD.

The report of this case appears as an original article at p. 200.

II.—CASES OPERATED ON FOR EXTRA-UTERINE PREGNANCY.

BY PROFESSOR MURDOCH CAMERON.

In relating his experience of such cases, Dr. Cameron spoke of the subject as being one of which they had little experience in Glasgow. In England and Germany innumerable cases were reported, but his idea was that many of them were discovered, on explanatory incision being made, on account of some pelvic disturbance, and not diagnosed before operation. He had seen many cases of hæmatocele in the Western Infirmary under Dr. Leishman's care, and he wondered, if the abdomen had been opened in all of those cases, whether a number of them might not have been extra-uterine pregnancies. By such operative proceedings, however, they might have lost some of the patients, whereas, under Dr. Leishman's cautious treatment, they had uniformly recovered. He remembered a case which he had seen with Dr. Leishman in private practice,

the patient being of the class described as likely to have extra-uterine pregnancy—viz., a person who had been married for many years, but never been pregnant, and whose uterus had been dilated and curetted, and touched with carbolic acid, and had the other usual remedies for sterility. At length she did become pregnant, and in the second month had suffered from persistent vomiting, which so reduced her that her weight fell from about 14 st. to 8 or 9 st. A distinct tumour had been felt in the region of the right Fallopian tube and uterine horn. Dr. Leishman had thought the vomiting might be due to gastric catarrh, and recommended gastric sedatives, while Dr. M'Call Anderson, who was called in consultation, suggested rectal feeding. Dr. Cameron had had the patient longer under his care than the others, and suggested to Dr. Leishman the probability of there being an extra-uterine pregnancy. As the patient seemed likely to succumb, Dr. Leishman passed the sound up into the right tube, and abortion took place. With the expulsion of the foetus the vomiting ceased. Dr. Cameron was almost certain that it had been a case of extra-uterine pregnancy, and that the expulsion had been first into the uterus, and then onwards into the vagina. Another case which he had seen, also with Dr. Leishman, at the fifth or sixth week, did well after operation.

Of the two cases, which he wished specially to describe, and which had been mentioned on the billet, the first was that of a young lady, who had been married at 21 years of age, and seven months afterwards had been delivered of a premature child, which lived for only two days. In February, 1891, she had again ceased menstruating, and six weeks after the last illness she had had a severe attack of colic, followed by an irregular discharge, continuing for six weeks. There had been no doubt that she was pregnant, and at about the sixth month a doctor had examined her and felt foetal movements, and heard the foetal heart. At the eighth month she had had a rigor, with "bearing down" pains, and at full term she had suffered from frequency of micturition and retention of urine for two days, with a feeling as if something were coming away, and a discharge of what she called "membrane," and of "wind" from the vagina. From December onwards she had had a slight sanguineous discharge, which had continued till February, 1892. She had naturally been alarmed, but her doctor and the nurse had reassured her with the suggestion that she had miscalculated. During February she had had cramp, and had noticed her shape to alter. During March she had been very well, and her only trouble had been her anxiety

through keeping the nurse waiting. In April there had been a whitish, watery discharge, mixed with "scales." About the end of June she had been brought to Dr. Cameron, who had found her abdomen to be of the size usual at the seventh month, the tumour reaching to the umbilicus and being non-fluctuant, hard, and firm. Examination by the vagina had then shown the cervix to be displaced towards the right, and the sound had passed to 3 inches; on the left and in front he had found a tumour continuous with that in the abdomen. There could be detected no foetal pulsation, but the breasts had still contained an abundant secretion of milk. Dr. Leishman had been consulted, and had suggested the possibility of a molar pregnancy, but this had been excluded by the passage of the sound. Dr. Cameron's opinion had been that there was either an extra-uterine pregnancy or a fibroid. Abdominal operation had been decided upon, and on incising Dr. Cameron found a large tumour with none of the appearances of uterine tissue. It had been adherent right across to the transverse colon. He then incised this tumour, and found a soft material like wet gingerbread. This he took to be placenta, and on passing through it he came upon a limb; the incision was then extended and a mature child withdrawn, only slightly macerated. The sac had been composed of fibrous tissue. The placenta had been inserted in the posterior wall of the uterus, and the developing tumour had grown upwards, forming the adhesion to transverse colon as already mentioned. As much of the sac and placenta as could be scraped and cut off had been removed (about two-thirds), but the lower portion had been adherent to the pelvic organs and had to be left, a drainage-tube being inserted. The abdominal cavity had been washed out daily for about two weeks, and in six weeks the patient's recovery had been perfect. Dr. Cameron expressed his thanks to Dr. Hinshelwood for assistance in the management of the case.

The second patient had been a multipara. Dr. Cameron had been called on a Thursday and found her very anæmic, and suffering from great abdominal pain and tenderness, with a temperature of 102° to 103°. She had had uterine hæmorrhage for several weeks. On examination by the vagina, he had found what appeared to be a retro-uterine hæmatocele, but in the right broad ligament there had also been a distinct swelling. There was, further, a history of amenorrhœa for three months. Laudanum fomentations had been applied, and next day the pain had been less, but Dr. Cameron had urged the husband to consent to operation. On the Saturday the

temperature had been high (103°), and the patient had then been removed to the Maternity Hospital, where she was seen by Dr. Sloan, Dr. W. L. Reid, Dr. Oliphant, and other members of the staff. The question had been discussed as to whether it was simply a case of hæmatocele, or whether there was an extra-uterine pregnancy. Of course, they had all recognised the hæmatocele, but the difficulty had been to decide what was the reason of the swelling in the right broad ligament. They had all agreed that delay would be dangerous, and advised an exploratory incision.

On opening the abdomen, Dr. Cameron had found the whole of the pelvic contents matted together. He had been able to feel the fundus of the uterus, but it had been continuous with what appeared to be a cyst, passing upwards towards the abdominal cavity; in the right broad ligament also there had been a cystic growth, and the right Fallopian tube had been much enlarged. On account of the dilatation of the tube he had decided to excise it, and, on incision into it being made, a thin sanguineous fluid had welled up, coming from a collection somewhere behind the uterus. With the finger up close to the left side of the uterus, he had then pressed on the "cyst" behind it, when there was a gush through the incision of serum and blood-clots, some of the latter being hard and melanotic. The whole of Douglas's pouch seemed to have been thus occupied. The apparent "cyst" had then been found to be bowel encapsuling the blood and preventing its escape into the general peritoneal cavity. As to the swelling in the right broad ligament, he had enucleated from it a cyst which, on incision, yielded a jet of fluid just like liquor amnii. Ligatures had been applied all round, the cyst removed, the abdominal cavity cleansed, and the operation completed. The patient had done well, and was presently to leave hospital after a six weeks' residence.

On examination of the cyst removed from the broad ligament, there had been no suspicion in Dr. Cameron's mind that it was anything else than a tubal pregnancy which had ruptured into the broad ligament. He had himself examined many cases of abortion, and had often been disappointed in not finding the embryo, and he had had a similar experience in examining cases along with Professor Cleland. The embryo was, in such cases of abortion, supposed to have died and to have been absorbed, and it was generally recognised that it did become absorbed in two or three days in the early stages of pregnancy, all that was left being the pedicle. In the present case he had found something like amnion, with vessels

coursing under it, and a pedicle. On microscopic examination at the Western Infirmary, however, it was reported that nothing of the nature of chorion or amnion could be detected; at the same time, Dr. L. R. Sutherland had not been able to say that it was anything else than a pregnancy. No ovarian tissue had been found, and Dr. Cameron was not disposed to doubt, even in the face of the negative results mentioned, that the case was really one of pregnancy.

Dr. W. L. Reid had nothing to add to Dr. Cameron's account of the case, which he had seen in consultation.

Dr. Samuel Sloan had been afraid at the time of operation that Dr. Cameron was to be puzzled by it; but he had been pleased to see then its successful termination, and to hear now of the good recovery made by the patient.

Dr. Balfour Marshall mentioned a case which he had seen in Gusserow's practice, and which bore out Dr. Cameron's remark about the difficulty of diagnosis of extra-uterine pregnancy and the relatively large proportion of cases published abroad. Gusserow said that the diagnosis was easy, and in this particular case had proceeded to operate. The pregnancy, however, had turned out to be a three months' uterine pregnancy with dextroflexion. The patient had aborted two days later.

Dr. Monro Kerr, in talking over the last of Dr. Cameron's cases with Dr. Sutherland, had found that they were agreed as to the symptoms being undoubtedly those of extra-uterine pregnancy, and as to the naked eye appearances of the tissues submitted for examination conforming to that diagnosis. On the most careful search with the microscope they had, however, not been able to detect any embryonic structures either in the blood clots or in the sac wall. The latter had consisted chiefly of fibrous tissue, with some bundles of muscular tissue; there had been no traces of villi there or in the clots. There had been no doubt in their minds as to the existence of an extra-uterine pregnancy, but they could not prove it. He mentioned the circumstances merely to show how difficult microscopic diagnosis was in such cases.

III.—PAPER ON "LOCAL MASSAGE IN THE TREATMENT OF CERTAIN GYNÆCOLOGICAL CONDITIONS."

BY DR. BALFOUR MARSHALL.

Dr. Marshall's paper appears as an original article at p. 203.

Dr. Samuel Sloan had had very little experience indeed of the subject under discussion, but he had been none the less

interested and pleased with the paper which Dr. Marshall had read. He was glad to find that they had among them a man who was able to introduce a subject so fully and so lucidly, regarding which few of them had any experience at all. During the reading of the paper Dr. Sloan had thought that "cures" were very easily obtained in some of the cases. "Cure" was probably a relative term. He thought, too, that the dangers of such massage were probably so great that its adoption would not soon be general.

In cases of fixed retroflexion Dr. Sloan had been in the habit of treating the condition partly by the genupectoral position and partly by pressure with the finger in the vagina. As a rule, he could only at first partially replace the uterus, and he then introduced a watch-spring pessary of exactly the proper size. The patient was kept in bed. The pessary exerted elastic pressure and gave a sort of continuous massage. Next day the uterus was found to have been partially raised, and a larger watch-spring pessary might then be introduced. Such treatment was continued for some days, and ultimately a rigid pessary introduced. The sound was dangerous in such cases if used with much force. In the earlier days of his practice he was in the habit of replacing by the sound, tearing the adhesions, and allowing the patient to return home. This he now recognised to be risky; as, especially if the weather were cold, a rigor was apt to occur, and it was then found that inflammation had been set up. Of course one might get similar harm from badly managed massage.

He had been astonished to hear that massage of the ovary relieved pain.

Dr. W. L. Reid said that, as regards massage, strictly speaking, he had had no experience. He had had some experience of forcibly raising the uterus when displaced backwards, and on the whole his results had been good. He could at present only remember one case in which the deliberate tearing of adhesions had been followed by harm, and in it the uterus had been curetted immediately before, so that there was some doubt as to whether the curetting or the other procedure had been responsible for the unsatisfactory consequences. Although he had had no experience of massage, he sympathised with Dr. Marshall to this extent, that if it were a question as between massage and laparotomy with forcible raising of the uterus and fixing it to the abdominal wall, he would prefer to give massage a trial. He thought that there would be difficulties in the way of getting it carried out apart from specially equipped hospitals.

Dr. Monro Kerr had had the privilege, under the same teacher as *Dr. Marshall*, of massaging several patients with adhesions around the uterus, and the immediate results had been very satisfactory. If, however, the massage was stopped for a week or two, they came back with their old symptoms. Recent literature which he had consulted brought out the fact that this was a very general opinion. At the Berlin Society of Gynæcologists and Obstetricians, Professor Martin had recently laid special stress on that point, and among the highest authorities on the Continent the method was now much less in favour than it was a few years ago. It was remarkable, indeed, how true had been the prophecy of Professor Hart, as quoted by *Dr. Marshall*. Undoubtedly there must be a few cases in which it was beneficial, and at any rate it was right, as *Dr. Marshall* had said, to try what massage could do before undertaking the serious risks of abdominal operation.

Dr. Murdoch Cameron considered that an altogether undue credit had been ascribed in the paper to the inventor of this method of treatment. His claim to have been able to catch the fundus of a prolapsed uterus must appear absurd to those who were accustomed to examine such cases. The method itself *Dr. Cameron* strongly condemned as likely to tend to immorality. He found that cases of parametritis and perimetritis, after improving in hospital, always came back with a renewal of their symptoms if marital relations had been resumed on their return home. He thought that this fact argued against the likelihood of benefit resulting from massage. The treatment for fixed retroflexion mentioned by *Dr. Sloan* quite met with his approval. Some time ago, *Dr. Yule Mackay* had, at his request, examined the bodies in the dissecting room at the University for uterine adhesions, and he had reported that they were not only very frequent, but very firm. When *Dr. Cameron* had spoken of the method of forcibly tearing them, *Dr. Mackay* had said that the danger would then be not to the uterus, but to the organ to which it had become adherent. *Dr. Cameron* could not admit that the choice in cases of displaced uterus was necessarily between massage and laparotomy with ventro-fixation. Such patients could go through life very well with a pessary, just as a person with a maimed limb did with a crutch.

Dr. Moyes added to what *Dr. Cameron* had said about uterine adhesions, an observation which he had made when assistant to Professor Buchanan in Anderson's College. He

was sure that not in five per cent of the female bodies were the pelves free from adhesions.

Dr. Marshall, in reply to *Dr. Sloan*, said that in the case detailed in his paper the retroflexion could not have been treated by a pessary because of the presence of the tender ovary in the pouch of Douglas. He thought that the term "cure" was perfectly warranted for the class of cases of fixed retroflexion which he specially mentioned. With regard to *Dr. Murdoch Cameron's* criticism that massage tended to immorality, he felt confident that when it was properly conducted it had no such tendency. No pleasure resulted from it in the form he had described. There was an objectionable form which he had specially mentioned, and which he agreed in condemning. When cases of parametritis and perimetritis became worse after the resumption of marital relations, that could easily be explained by the accompanying congestion of the whole pelvic organs; such conditions did not occur at all in massage as he had described it.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1894-95.

MEETING IV.—23RD JANUARY, 1895.

The President, DR. G. A. TURNER, in the Chair.

I.—SPECIMEN OF FŒTUS WITH MENINGOCELE.

BY DR. JARDINE.

Dr. Robert Jardine showed a full time fœtus with a large meningocele attached to the back of the head. The labour had been normal, and the child had lived several hours.

II.—IMPROVED HOT-WATER UTERINE DILATOR.

BY DR. BELL TODD.

Dr. G. Bell Todd showed an improved hot-water uterine dilator. The dilators are made of block tin, and are slightly tapered. The handle is so arranged as to allow of a continuous current of hot-water flowing in and out of the dilator

on the principle of a double current catheter. They are used in the same way as Hegar's, but he claims that the action of the heat is advantageous in overcoming the resistance of the fibrous and muscular tissue, particularly around the os internum and lower part of the uterus.

III.—PRESIDENTIAL ADDRESS: TETANUS NEONATORUM.

BY DR. TURNER.

The President gave an address on "The Successful Preventive Treatment of the Scourge of St. Kilda (tetanus neonatorum), with some Considerations regarding the Management of the Cord in the New-born Infant." The address is published in full (see p. 161).

Dr. Malcolm Black said he had seen Mr. Fiddes and his nurse, and had impressed upon them the use of antiseptics. He had advised them to wash the abdomen with sublimate solution and to dust the cord with iodoform. In the event of the disease arising, he had advised the use of chloral hydrate, as the President had done.

Dr. G. Balfour Marshall remarked that although the tetanus bacillus was the accepted cause of tetanus neonatorum, yet excessive heat had a marked influence. In the large practice of midwifery in Elbirg many cases yearly occurred, the cause being ultimately traced to the ignorant use of baths at 106° F., for bathing the infants. On a proper temperature being used tetanus had disappeared. The use of antiseptics in the treatment of the cord was, as a rule, unnecessary, and such dusting powders as iodoform were too expensive in poor practice. Great cleanliness of the nurse's hands, and the use of the time-honoured piece of cotton with a singed hole in the middle sufficed. With these precautions he had never had any trouble resulting from the cord in the slum practice of the Rotunda or Edinburgh Maternity Hospital.

Dr. G. Bell Todd said that in 1885 two cases had occurred in the City Poorhouse. Both had been born outside, and afterwards taken into the house.

Dr. Richmond asked if tetanus among adults was common in St. Kilda. He had seen four cases in adults, and in every one there was earth in the wound.

Dr. Turner replied that, so far as he knew, in St. Kilda adults were not any more liable to tetanus than they are in other parts of this country.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

By DR. R. S. STEWART.

Degenerative Lesions of the Arterial System in the Insane.—The Nature of Granular Ependyma. By Beadles (*Journal of Mental Science*, January, 1895).—This writer expresses the opinion that the widespread degeneration of the arterial system, so commonly found in the insane, plays a very important part in the pathogenesis of mental aberration. He recognises the condition in some cases, and to some extent, as a secondary one, but believes that it often has a primary existence, and long antedates the onset of the insanity; and that the vacuolation and degeneration of nerve-cells is often a secondary result of the want of proper nourishment of the cell, due to the cutting off of the blood supply by diseased or occluded arteries. This condition, he considers, is to be attributed to some chemical poison circulating in the blood, such as alcohol, the syphilitic poison, ptomaines absorbed from the intestine, or alkaloidal substances developed in the blood itself.

The granular nodules so frequently found in the ventricles of the insane brain are regarded as owing their origin to an irritative cause, possibly some chemical substance contained in the fluid of the ventricles or present in the blood. This constant irritant acting upon the epithelium causes it partly to degenerate and partly to undergo proliferation, which may commence a down-growth into the tissues beneath. The connective tissue undergoes active increase, producing wart-like projections; and, on account of interference with the blood supply, it degenerates at an early stage, so that its structure becomes granular and amorphous.

Effect of Thyroid Feeding in some Forms of Insanity. By Bruce (*Journal of Mental Science*, January, 1895).—Twenty-five cases were subjected to this method of treatment, and the following are the conclusions arrived at:—The internal administration of thyroid induces a true febrile process, and the resulting reaction is beneficial; the amount required to induce physiological action varies in different individuals, but it is seldom necessary to give more than 60 grains daily. Excessive and prolonged administration produces gastric irritation, and another danger is induced—heart weakness—which is obviated by confinement to bed. The administration of thyroid is contraindicated in cases of acute excitement with rapid loss of weight and malassimilation of food; but it is specially useful in insanity of the adolescent, climacteric, and puerperal periods, and frequently so in cases where recovery is protracted and the tendency is to drift into dementia. In general paralysis it is hoped that benefit will accrue if the patient is treated at an early stage; and it is believed that thyroid feeding will prove a valuable addition to our armamentarium in the treatment of certain forms of insanity.

Insanity among the Natives of South Africa. By Greenlees (*Journal of Mental Science*, January, 1895).—Maniacal states are found to preponderate very greatly, constituting 67 per cent of the admissions, melancholy being very rare. General paralysis is practically unknown. The most prominent causes are excessive drinking and the smoking of dagga, a plant almost identical with Indian hemp, producing temporary intoxication, and in some cases outbreaks of acute excitement.

Recovery from Melancholia after unusually long Periods. By Neil (*Journal of Mental Science*, January, 1895).—This is a record of three

cases in which recovery took place after eleven, nine and a half, and seven years respectively. All three presented symptoms usually considered of bad omen. In one, the duration of the disorder on admission was three years, and for three more years the condition continued to get worse. In two, there were vivid and fixed delusions for several years; and in one, there were automatic movements, and wet and dirty habits for years. Recovery, which in each was complete, took place in the absence of any special mode of treatment.

The Epileptic Colony (*Journal of Mental Science*, January, 1895).—The foundation stone of the first permanent building of the colony, founded by the National Society for the Employment of Epileptics, was laid on 14th November, 1894, at Chalfont, St. Peter's, Buckinghamshire. Since August, about a dozen epileptics have been accommodated in temporary buildings, and the results have been very satisfactory, and it is confidently anticipated that further substantial good will be effected.

The Pathogeny of the Epileptiform Seizures in General Paralysis. By Legrain (*Archives de Neurologie*, February, 1895).—This writer contends that congestion of the nervous centres is an insufficient explanation of these seizures. He considers that there exists in those cases which are characterised by severe seizures a toxæmia of a particular character, such as one meets in certain forms of uræmia, and he finds proof of this in the existence of numerous visceral lesions, whose tendency is towards the accumulation of poison in the blood. Confirmation of this hypothesis is claimed from the fact that the blood withdrawn at the commencement of a series of seizures is found to be hypertoxic, and that generalised convulsions can be produced by the intravenous injection of the serum obtained from such.

The Treatment of Epilepsy (*Archives de Neurologie*, February, 1895).—Mœli, speaking at the Psychiatric Society of Berlin, recommended the substitution of atropine in those cases where bromide cannot be borne, or where it proves inefficacious. In one-third of these cases, a veritable amelioration resulted. Frenkel described a case in which fits had occurred for fourteen years, often to the extent of 120 per month. Treatment by bromide of zinc was completely unsuccessful, but under Flechsig's method (opium and bromide) the fits disappeared, and remained in abeyance for ten months. The withdrawal of the opium was always followed by recurrence of excitability and mental confusion.

Probationary Curative Detention of the Alleged Insane. By Norman Kerr.—Dr. Kerr, in this paper read to the Psychological Section of the British Medical Association, 1894, pleads for the provision of a short probationary detention, without formal certification, in some special institution other than an asylum, chiefly on the ground that in a large proportion of cases the affection is of a purely temporary character, and on account of the hardship involved by the wide-spread and inveterate prejudice against the reliability of persons who have been inmates of asylums, even though they are discharged recovered.

The Pathology of Dementia Paralytica. By Berkley (*American Journal of Insanity*, January, 1895).—This is a detailed account of the microscopic examination of a case terminating fatally at an early stage of the disease, from which, it is concluded, that in the course of the affection three stages are to be recognised. First, a period in which the nerve structures begin to receive an insufficient supply of nutrient material from the blood, and in which the more active and recently acquired mental functions begin to fail. In the second, the starving tissues begin to feed upon themselves, with resultant disturbance of cellular metabolism, manifested clinically by increased motor excitement and grandiose ideas. In the third, there is actual disin-

tegration of nerve cells with overgrowth of connective substance, revealing itself by dementia and pronounced paresis. The primary condition is vascular degeneration, the cause of which, it is hinted, may lie in loss of tone of the nerves of the arteries.

The Eye Symptoms of Early Paresis. By Hepburn (*American Journal of Insanity*, January, 1895).—In the examination of eight cases, the following appearances were noted:—In the earliest period the optic nerve entrance is creamy pink or leathery, without alteration of vessels; later, the discs become whiter, and, finally, take on a bluish tint, with slight cupping, and with vascular changes, which are much less marked than in cases of ordinary atrophy. Cutting off of the field of vision on the temporal side is looked upon as a fairly constant symptom, and the rate of its increase as a measure of the progress of the disease.

Phenocol Hydrochlorate. By Vogt (*Le Progrès Médical*, 4th August, 1894).—After two years' experience, this writer strongly recommends this drug in neuralgia and rheumatism. In doses of half-grammes six times daily it produces no untoward effects except transient redness of the face. The effect was found to be at least as good as that of phenacetine, but did not equal that of antipyrin; but, unlike these, it was easily tolerated even when given over a period of five or six days. It was found of great service in those cases of rheumatism where there existed an invincible intolerance of the salicylates, or where there was a risk of salicylic intoxication.

PHYSIOLOGY.

By WILLIAM SNODGRASS, M.A., M.B., C.M.

The Percussion Sound of the Thorax.—Professor E. Castex, of Lille, has attempted to ascertain the cause or causes of the percussion sound of the thorax. He makes use of the method of photographing manometric flames vibrating in harmony with the sound-waves, the flame being intensified by the presence of benzine vapour, and the photographic impression being taken upon a plate moving in a specially prepared camera. The manometric capsules are connected with the interior of the lung either by the trachea, by trochars thrust through the chest walls, or, in the case of human beings, by the mouth, the nostrils being closed. Time is recorded by means of the vibrations of a resonator vibrating the Ut, (128 double vibrations). A pleximeter is used for percussion. A large number of photographs have been taken, the conditions being varied in many ways.

The conclusions at which he arrives are as follows:—The percussion stroke causes movement of the thoracic walls, the pulmonary tissue, and the intrapulmonary air. The intrapulmonary air vibrates in accordance with the law of resonators, and emits its special sound, which we may call the pulmonary air-sound: the thoracic walls—or, more strictly speaking, the ribs—give rise to a sound, the parietal sound; the parenchyma of the lung, like the soft parts of the chest walls, has no special sound, and acts only as a damper of the first-mentioned sounding bodies. The combined pulmonary and parietal sounds mingle with the sound of the stroke, the sound of the pleximeter, &c., to make up the percussion sound of the thorax; and according to the manner in which percussion is performed, the relative intensities of the parietal and pulmonary sounds can be made to vary, so that one or other predominates.—(*Archiv. de Physiol. Norm. et Patholog.*, January, 1895.)

The Effect of Filtered Cultivations of the Staphylococcus Pyogenus on the Serum of the Blood.—Professor Courmont, of Lyons, together with M. Rodet, has shown that in bouillon cultivations of

staphylococcus pyogenus two sets of soluble substances are formed, one of which, soluble in alcohol, has a protective effect after inoculation, while the other, insoluble in or precipitated by alcohol, gives the reverse effect—a predisposition to the effects of the micro-organism. In the ordinary mixture of these the predisposing substances predominate, while the vaccinating or protective substances are masked, and their effects only appear after separation with alcohol. The substances precipitable by alcohol have, moreover, toxic properties antagonistic to those of the substances soluble in alcohol. It is thus possible, with the aid of alcohol, to extract from a given culture of *staphylococcus pyogenus* a vaccinating and a predisposing material, and to prepare two sets of animals, one of which is vaccinated against the *staphylococcus pyogenus*, the other predisposed to it.

Courmont has also shown that the serum of the rabbit, vaccinated against infection by the *staphylococcus*, exercises a marked attenuating effect upon the *staphylococcus* apart altogether from the cellular action of the organism. On the other hand, the serum of a predisposed animal favours the growth of a specially virulent *staphylococcus*; it weakens the natural attenuating properties of normal serum, and even renders this liquid more favourable for the cultivation of the microbe than ordinary bouillon, for a microbe which cultivated in bouillon, no longer kills a rabbit, becomes again virulent when cultivated in the predisposed serum.

It would be a matter of vital importance if we could determine exactly the chemical change in the serum in virtue of which its effects are so profoundly altered.—(*Archiv. de Physiol. Norm. et Patholog.*, January, 1895.)

The Excretion of Sulphur by the Urine.—The study of the elimination of sulphur by the urine is of interest as representing the destructive metabolism of the proteids of the body. Sulphur occurs in the urine either in a completely oxidised form, as sulphates, or in an incompletely oxidised form, as in salts of the sulpho-conjugated acids, sulpho-cyanates, cystine, taurine, &c. The latter class, however, are easily oxidisable. It has been shown that the ratio of the amounts of the two kinds of sulphur compounds varies with certain physiological and pathological conditions, and that the knowledge of the ratios may give valuable assistance from a clinical point of view. Thus, with conditions leading to defective action of the intestinal tract, and more especially with pronounced microbic development in the intestines and accompanying decomposition of their contents, we find a relative increase in the amount of the readily oxidisable sulphur compounds, and this, again, in the case of patients suffering from various forms of disease, such as general paralysis, may be accompanied by marked aggravations of the symptoms of disease. M. G. Voirin and M. Lambert believe that this is due to the development of toxins in the intestines, which, being absorbed, affect the liver and diminish its power of forming the ordinary sulphates. They have recently studied the effects of poisons which exercise a special influence on the liver, such as arsenite of potash, phosphorus, and pyrogallie acid. Such substances, by destroying the hepatic cells, have a distinct effect on the form of sulphur elimination.—(*Archiv. de Physiol. Norm. et Patholog.*, January, 1895.)

The Changes undergone by Thyroid Grafts.—Dr. H. Christiani, of Geneva, has made a systematic study of the changes undergone by thyroid grafts, in specimens examined at varying intervals after the operation of grafting. He finds that the graft at first becomes tumefied, then returns to its embryonic condition, and finally begins to undergo regeneration. The regeneration begins at the periphery and progresses towards the centre, together with a new vascular formation. The reconstitution of the organ is somewhat rapid during the earlier days for the part in direct contact with the inflammatory tissue, which constitutes the adhesion of the graft. It is slower for the central part, but the process is complete in about three months, the time depending, however, on the size of the graft, the smallest portions regenerating most quickly. Once formed again, they may persist as long as

the normal life of the animal without undergoing atrophy. They become permanent organs, having the ordinary morphological character of the thyroid body.—(*Archiv. de Physiol. Norm et Pathol.*, January, 1895.)

Effect of Massage on Circulation.—The main results of an investigation by Drs. T. Lauder Brunton and F. W. Tunncliffe into this subject are stated and thus summarised in the *Journal of Physiology* for 15th December, 1894.—(1) During the massage of muscles the flow of blood through them is increased; (2) immediately after the cessation of massage, an accumulation of blood occurs in the massaged muscles; (3) the massage of a considerable muscular area causes, at first, a slight rise in the general blood pressure, this is followed by a fall, which, in some cases, amounts to one fifth of the initial blood pressure.

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

Association of Respiratory Paralysis with Cardio-Pulmonary Symptoms in Diphtheritic Paralysis.—Dr. Pasteur communicated a paper at the Clinical Society, London, upon this subject on 20th January. He paid special reference to the frequency with which the diaphragm becomes paralysed, and the extreme degree of collapse of the lung where paralysis has existed for one or more days previous to death. He states—(1) The mortality in diphtheritic multiple paralysis is probably higher than current opinion would lead one to suppose; (2) death takes place by asphyxia; (3) the fatal symptoms are, in the large majority of cases, of sudden onset, and suggest a bulbar origin; (4) recovery from a bulbar crisis is exceptional; (5) paralysis of the diaphragm is comparatively frequent, and may occur either acutely as part of the bulbar crisis, or may develop immediately as part of the peripheral paralysis; (6) the supervention of respiratory paralysis very seriously increases the gravity of the prognosis; (7) whenever paralysis of the diaphragm or other part of the chest wall is long continued (two or more days), collapse of the adjacent lung is very liable to occur, and may give rise to definite physical signs; (8) the base of the right lung is more liable to be affected in this way than the left.—(*Medical Press and Circular*, 30th January, 1895.)

Chronic Self-inflicted Ulceration of the Throat.—Dr. Felix Semon reported a case at the Clinical Society, London, in which a lady, æt. 36, had resorted to this novel form of malingering. The mucous membrane of the soft palate, the uvula, the arches of the palate, tonsils, and the posterior wall of the pharynx were found to be partly infiltrated, and partly ulcerated; in some spots the mucous membrane was bright red, and in others denuded epithelium; whitish shreds here and there of a yellowish colour could be detected. The striking thing to be noted in the case was the limitation of the affection to particular parts, and the abrupt termination of the affection above and below the region indicated. Dr. Semon thought the whole affection was self-inflicted by means of nitrate of silver or nitric acid.—(*Medical Press and Circular*, 30th January, 1895.)

Laryngeal Paralysis in Chronic Nervous Disease.—Dr. Permevan has been investigating the condition of the larynx in chronic nervous affections. He found that in thirty-four cases of general paralysis taken without discrimination, in each there was more or less marked implication of the laryngeal muscles. Further, he found that, in all the cases except one, the paralysis or pareses was limited to the abductors. The author concludes that while the larynx is not infrequently affected in general paralysis, that it does not necessarily depend upon the association of tabes with the more general disorder,

but as a direct result of degeneration and inflammatory changes which affect the central nervous system in general nervous paralysis.—(*Journal of Laryngology*, February, 1895.)

Behring's Blood-Serum.—In coming to a conclusion about the advantages of this method of treatment, it is important to note anything referring to the disadvantages of this method of treatment. Professor Kolisko stated lately, at a discussion in Vienna on this subject, that he had made an examination of over 1,000 diphtheritic post-mortem cases in the St. Ann's Children's Hospital, 75 of whom had been treated with blood-serum. He thought the antitoxin serum performed a beneficial effect on the diphtheritic surface; the membrane being easier removed than in cases not treated with serum. He had not observed bronchitis or degeneration of the heart due to the serum, nor could the affections of the kidneys be said to be different from those experienced before the use of the serum. He said there were epidemics of diphtheria where nephritis was a usual concomitant, at other times not a single case could be detected. He considered the local reaction was very great. [It is right, however, to state that other prosecutors in Berlin have not been able to give such a favourable report as that of Professor Kilisko.]—(*Medical Press and Circular*, 13th and 20th February, 1895.)

A Case of Sarcoma of the Palate Successfully Treated by the Toxines of Erysipelas.—In the Section of Laryngology, at the meeting of the New York Academy of Medicine, 24th October, 1894, Dr. Walter B. Johnson reported the case of a patient, a young man, æt. 16, suffering from sarcoma. On examination it was found that a diseased area extended over the soft palate, the pillars of the fauces, and the region of the tonsils. It also extended forward over the hard palate, and downwards, involving a portion of the pharyngeal wall, the base of the tongue, and the upper part of the larynx, but not extending to the true vocal cords. The entire region was thoroughly infiltrated with sarcomatous deposits. The soft palate was increased to about three times its normal thickness. The new tissue consisted of cauliflower-like granulations, and some of the masses which made up the growth were undergoing a superficial ulceration, and discharging purulent secretion; others contained distended and tortuous vessels, which gave them a dusky hue, frequently observed in sarcoma. The uvula was apparently entirely destroyed by the ulceration. Several of the cervical glands were enlarged to a moderate extent. Since the onset of his throat trouble the patient had been steadily losing flesh and strength, and when he came under observation weighed 86 pounds. The dysphagia obliged him to take small quantities of liquid nourishment. The thickening of the soft palate prevented his breathing through the nose. A microscopical examination proved the growth to be a spindle-celled sarcoma. The treatment adopted was the hypodermic injections of the toxines of erysipelas, in combination with the toxines of the bacillus prodigiosus. These were supplied by Dr. W. B. Coley, of New York. Some of the solutions were prepared by Dr. Alexander Lambert, of the College of Physicians and Surgeons, New York, and others by Mr. B. H. Buxton, of the Carnegie Laboratory. On 21st October, 1893, the injections were begun, 15 minims being given every day; this dose was gradually increased up to 40 minims. The injections, which were usually made in the arm or leg, always produced redness, swelling, and pain, which persisted for from twelve to thirty-six hours. The temperature after each injection varied from 90° to 103° F. After some of the injections the patient suffered from chills, nausea, and vomiting. The treatment was continued from 31st October, 1893, to June, 1894, although it was intermitted a number of times during this period, for various reasons. The result of the treatment was a slow but steady improvement. Two weeks after the injections were begun, the soreness left his throat, and he was able to swallow fluid and solid food. This produced an improvement in his general condition, which has steadily continued. The glandular swellings gradually disappeared. In the throat, cicatrization and

contraction have taken place, and a white band of adhesion extends from the hard palate to all parts of the fauces. The uvula and a small portion of the epiglottis were destroyed by the ulceration. In June last the injections were discontinued, and since then there has been no return of the disease. The man is in excellent physical condition, and now weighs 107 pounds. He has no annoying symptoms of any kind.—(*The Journal of Laryngology*, January, 1895.)

Recent Literature.—"Die causale Behandlung der Tuberculose: Experimentelle und Klinische Studien. Mit einem Photogravure, sieben farben und Kurventafeln, vier figuren in Text, und einem statistischen Beilage." (*The Causal Treatment of Tuberculosis: Experimental and Clinical Studies. With one Photogravure, seven coloured Plates and Tables of Curves, four Woodcuts in the Text, and one Statistical Table*).—By Klebs, Karlsruhe.

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"Atlas of Laryngology and Rhinology." By A. Gouguenheim and J. Glover. J. Masson, Paris.

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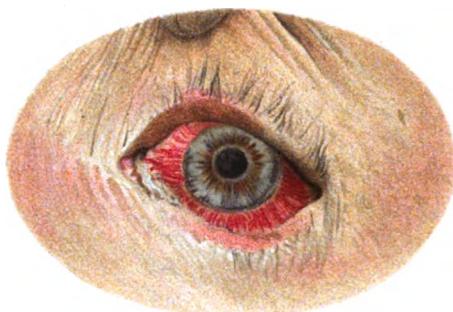
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On the Geographical Distribution of the Tropical Diseases in Africa, by R. W. Felkin, M.D., F.R.S.E. Edinburgh: W. F. Clay. 1895. (3s. 6d.)

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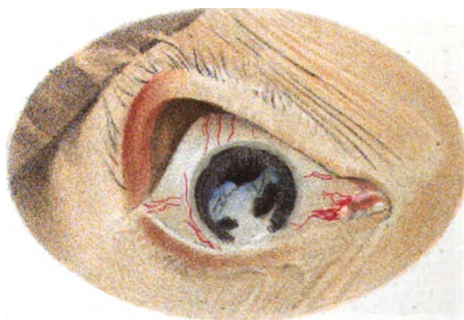
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Glaucoma Subacute.



Glaucoma Chronic.



Glaucoma Absolute.

THE
GLASGOW MEDICAL JOURNAL.

No. IV. APRIL, 1895.

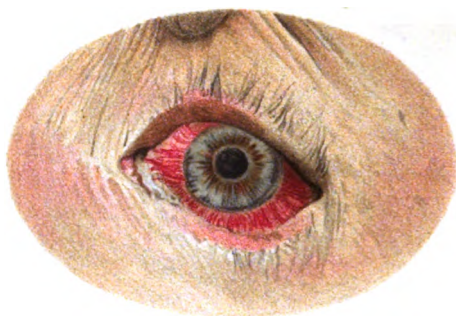
ORIGINAL ARTICLES.

ON THE DIAGNOSIS AND TREATMENT OF GLAUCOMA.

By A. MAITLAND RAMSAY, M.D., F.R.C.S.G.
Surgeon, Glasgow Eye Infirmary.

(Continued from p. 219.)

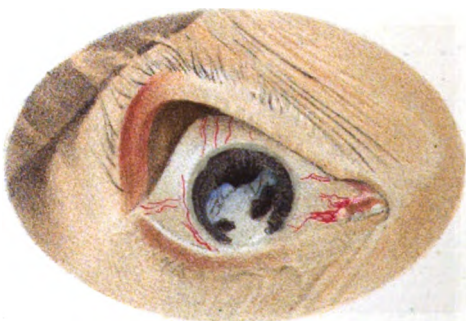
Alterations in the Uveal Tract.—Section and compression of the choroidal and ciliary blood-vessels lead to the exudation of fluid into the vitreous, with the result that the fluid is pushed forward at the expense of the detached retina and choroid. The blood-vessels on the outside of the eye all become dilated and tortuous, and the conjunctiva becomes congested; while in very acute cases serious effusion may take place between the choroid and retina and lead to rapid loss of vision. In advanced cases the cornea may become thinned, and this atrophic process is usually most marked at the posterior pole of the eye and shows itself on thalamic examination as a whitish-yellow ring surrounding the optic disc. The increased pressure of the engorged ciliary processes upon the base of the iris leads to constriction of its blood-vessels, and the pupil becomes dilated; and if the pressure be more pronounced at one part of the iris than at another, the dilatation is unequal, and the pupil tends to assume an oval form. In the earlier stages at least, there is no real paralysis of the sphincter of the iris, for the



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THE DIAGNOSIS AND TREATMENT OF GLAUCOMA.

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2. *Alterations in the Uveal Tract.*—Sudden congestion of the choroidal and ciliary blood-vessels leads to excess of pressure in the vitreous, with the result that the lens and iris are pushed forward at the expense of the depth of the anterior chamber. The blood-vessels on the outside of the eyeball become dilated and tortuous, and the conjunctiva may become cedematous; while in very acute cases serous effusion may form between the choroid and retina, and lead to rapid extinction of vision. In advanced cases the choroid may become thinned, and this atrophic process is usually most marked at the posterior pole of the eye, and shows itself on ophthalmoscopic examination as a whitish-yellow ring surrounding the optic disc. The increased pressure of the distended ciliary processes upon the base of the iris leads to constriction of its blood-vessels, and the pupil becomes dilated; and if the pressure be more pronounced at one part of the iris circle than at another, the dilatation is unequal, and the pupil tends to assume an oval form. In the earlier stages at least, there is no real paralysis of the sphincter of the iris, for the

pupil will contract with eserin and dilate with atropine; but after the increased pressure has been long maintained, the iris fibres lose their elasticity and begin to atrophy. The ciliary muscle is early affected in a similar manner, and its enfeeblement gives rise to the progressive failure in the power of accommodation, which is one of the most suggestive of the premonitory warnings of the onset of glaucoma. Of course, direct pressure upon the ciliary nerves will also tend to intensify the muscular paresis, while irritation of the branches of the fifth nerve affords an explanation of the neuralgic pain which is an invariable accompaniment of the congestive forms of the disease.

3. *Changes in the Transparent Media.*—The aqueous tends to become muddy, and the lens and the vitreous to lose their perfect transparency, and these changes, together with the opacity of the cornea, serve to explain the peculiar greyish-green reflex observed in the dilated pupil of a glaucomatous eye, which, being to the ancients the most striking feature of the disease, gave rise to the name (*γλαυκός*, sea-green).

4. *Changes in the Retina and Optic Nerve.*—The retinal circulation is naturally disturbed, because, as a result of the increased pressure, the arteries are incompletely filled and the retinal veins congested; indeed, when advanced degenerative changes have taken place in the walls of the blood-vessels, hæmorrhages are not uncommon. By the ophthalmoscope, both the arteries and veins, as they pass over the optic disc, are seen to pulsate, and as pulsation in the arteries never occurs in a healthy eye, its recognition is of great diagnostic value. The increased pressure leads also to changes of a very characteristic kind in the optic nerve and retina. Brailey has demonstrated that the first change in the optic disc, resulting from the increased pressure, is a backward displacement of the lamina cribrosa, and as this carries along with it the optic nerve fibres, excavation of the surface of the disc begins, and is visible on ophthalmoscopic examination. As the disease progresses, and the increased tension is maintained, the lamina cribrosa recedes farther and farther, and the excavation of the disc becomes deeper and deeper, and can, if the case be kept under observation, be measured by means of the ophthalmoscope. A glaucomatous cup requires time for its formation, and is only developed after a considerable period of increased tension, consequently it is not seen after a single inflammatory attack, unless there has been a prolonged premonitory stage. When fully formed, it presents certain appearances which may be regarded as pathognomonic. It involves the whole disc, and

is surrounded by steep, overhanging margins, while its floor has a greyish, stippled look, due to the lamina cribrosa. As the retinal vessels are pushed backward along with the nerve fibres, they are abruptly bent at the margin of the disc, and get under cover of the overhanging edges until they reach the floor of the cup, pressed against which they lie until they again disappear into the vascular canal of the optic nerve. The arteries are usually somewhat reduced in calibre, but the veins are always congested. The bending of the nerve fibres over the margin of the cup, and the pressure to which they are subjected sooner or later tells on their nutrition, and atrophy sets in, with the commencement of which, alteration in the colour of the disc takes place and, coincidentally, sight begins to fail—the failure in visual acuity, however, depending not so much on the actual depth of the cup as upon the degree of atrophy of the nerve fibres that has been reached, the amount of which is indicated by the pallor of the disc. It is consequently clear that observation of the degree of this pallor, and of the calibre of the retinal vessels, is of the highest prognostic importance. A pale, or what is worse, a bluish or greenish-white nerve, with small arteries and distended veins, has a much more serious significance than a deeper cup of a more natural colour.

Along with defects in the visual acuity there is always associated a restriction of the visual field, at first confined for the most part to the nasal portion, and as a rule not involving the temporal region till the disease has made considerable progress, but still steadily becoming greater and greater until vision is totally annihilated. It is interesting here to note that colour vision, which is lost so early in primary atrophy of the optic nerve, is retained in glaucoma for a comparatively long period, and consequently, in a doubtful case, the results of the examination of the colour-sense may be of very considerable value.

Intra-ocular hæmorrhage is such a frequent accompaniment of glaucoma that some consider that hæmorrhagic cases—which, according to de Wecker, form about 2 per cent of the whole—should be grouped together in a class by themselves. Vascular degeneration is always present, and when microscopic sections of glaucomatous eyes are examined, endarteritis and aneurismal dilatation of the blood-vessels may be detected. Arterio-sclerosis, as H. Müller has shown, is especially common in the short ciliary arteries in the neighbourhood of the optic nerve, and also, as Kuhnt has observed, in those of the ciliary circle, and this affords an anatomical

explanation of the occasional occurrence of hæmorrhages into the optic cup as well as into the anterior chamber. The following case may be taken as a typical example of hæmorrhagic glaucoma:—

Mr. N., aged 43, was sent to see me by his medical attendant on 16th February, 1890, on account of sudden loss of vision in his right eye. He told me that three days before, while sitting in his office writing, he suddenly became sick and giddy, and felt as if something had passed over his eyes. For a moment he could not make out what had happened, but after the giddiness had passed off, he tested each eye separately, and found that the right one was blind. There was, and had been, no pain in the eye, which to external appearance was quite normal, and the tension of the globe was not increased. Testing brought out that at the periphery of the visual field he could only make out large objects very imperfectly, and when he looked straight before him he could see nothing at all. Ophthalmoscopic examination showed the media to be quite clear, but there was a very pronounced hæmorrhagic retinitis. The optic disc was swollen and very indistinct in its outline, and hæmorrhagic blotches were seen in the retina, and scattered all over the fundus, but most abundantly round the optic nerve and the region of the macula. There was marked accentuation of the second sound over the aortic cartilage, but no valvular murmur could be detected. The apex beat was in normal position, and the area of cardiac dulness was not increased. The patient, however, complained of breathlessness on exertion, and as his father had died of apoplexy at the age of 46, he was naturally very apprehensive as to his condition. His urine was loaded with lithates, but contained neither sugar nor albumen. Kept in bed, and placed under treatment, he made at first all the progress that could be desired; his general condition was markedly improved by the rest; the eye remained quiet; the perception of light became stronger, and the retinal hæmorrhages were beginning to be absorbed; but, at the end of six weeks, suddenly and without any apparent cause, the eye became acutely painful, the ocular conjunctiva deeply injected, and the tension greatly increased. The fundus could not be illuminated by the ophthalmoscope, and perception of light completely disappeared. The suffering, in spite of treatment, was almost continuous, and relief was not obtained until the eyeball was enucleated. The left eye was quite normal, and during the remaining four years of the patient's life, kept free from disease.

In many of those cases the retinal apoplexy is due to

embolism or thrombosis of the central artery of the retina; as a rule the hæmorrhages occupy its superficial layers, and may invade the vitreous, while in other cases they come from the choroidal vessels, and blood-clots may be found lying between the choroid and the retina. As distinguishing the hæmorrhagic from other forms of primary glaucoma, it may be noted that although it may occur in both eyes, the second eye much more frequently escapes. In this connection, however, it ought to be remembered that when vascular degeneration has proceeded so far as to give rise to hæmorrhagic retinitis, the patient's blood-vessels, as a whole, are in such an unsatisfactory condition that he may die from cerebral apoplexy, renal cirrhosis, or some other such cause, within a comparatively short time.

Glaucoma may complicate cataract, or it may exist in eyes with high degrees of myopia, and either case demands special consideration.

1. *Glaucoma and Cataract.*—It is not often that increase of tension is present in eyes suffering from ordinary senile cataract, but in a glaucomatous eye the lens may become opaque early—*i. e.*, before the increase of tension has produced great diminution of the eyesight, and cataract always forms during the course of glaucomatous degeneration. In the latter case vision is lost, and consequently extraction of the cataract is useless, but in the former case the removal of the opaque lens will, in all likelihood, improve the vision very considerably. In such cases, however, a large iridectomy ought to be performed preliminary to the extraction, in order, if possible, to reduce the tension to the normal, as any attempt to remove the lens while the intra-ocular tension remains high is apt to be followed by hæmorrhage. Several years ago I had to operate on a woman, aged 62, for traumatic cataract. The accident that had injured the lens capsule had occurred two months before. The patient had been suffering pain in her eye and head for weeks, and at the time of the operation the eyeball was exceedingly hard, the lens was swollen, and had pressed the iris so far forward that the anterior chamber was nearly obliterated, and there was a deep livid congestion of the ocular conjunctiva. A very small corneal incision was made, as carefully as possible, with a narrow linear knife, but immediately on the escape of the aqueous, blood flowed from the choroid, the lens and vitreous were extruded *en masse* upon the patient's cheek, and the hæmorrhage was so profuse that it was controlled only with great difficulty. The eyeball had to be enucleated some weeks later.

It sometimes happens that the greyish green reflex from

the pupil of a patient suffering from chronic glaucoma is mistaken for senile cataract, and such an error in diagnosis is fraught with the most disastrous consequences. I well remember an old man who came from a remote country district in the south of Scotland to the Eye Infirmary to have his eyes operated on for cataract. He had been gradually losing his sight for a number of years, but his doctor had told him that he was suffering from cataract, and that nothing could meantime be done, as no operation was possible till he had become blind. He accordingly waited till, in one eye the loss of vision was complete, and in the other there was not sufficient sight left to enable him to find his way about his house. The diagnosis had been entirely mistaken. An examination showed that the lenses were perfectly transparent, but that the optic nerves were deeply excavated; while their greenish white colour told at once how much they were atrophied. No operation was of any avail—the case was one of simple chronic glaucoma, which had been allowed to run its course until the vision was all but totally annihilated, and there was not the slightest hope of recovery. Such instances, unfortunately, are not uncommon, and until the ophthalmoscope is more generally used in medical practice they will continue to occur. These are just the very cases which Mackenzie distinguished so carefully. They present no marked external symptoms, the pupillary reflex is well marked, and the tension is most variable, and probably at no time very high, so that, unless the ophthalmoscope be employed, accurate diagnosis is impossible. Glaucoma may follow the extraction of a cataract with or without iridectomy, but if we exclude the increase of tension liable to follow upon a needling operation, such a complication is by no means common. I have had, in my own experience, only one such instance: in it the tension of the cataractous eye was never found to be increased, but there was such a glaucomatous aspect that, as a safeguard, a large iridectomy was performed two months before the lens was extracted. The patient was a woman of very dissipated habits, aged 50, whose left eye—which had been injured in a brawl, and the sight lost some years before—had, on account of pain, to be enucleated shortly after she first came under my observation. There was no accident at the time of the cataract operation, but five days afterwards a small prolapse of the iris appeared at the outer angle of the wound. The patient was kept under observation in the hospital for nearly five weeks, and, as the eye had all along remained perfectly quiet, with no increase in its tension, as the wound

seemed firmly healed, and as some secondary cataract which had formed was gradually dissolving and the vision was good, she was allowed to go home. Six weeks after, she was again brought to the Infirmary, and stated that for several days she had felt considerable pain on the right side of her head, but that the night before her sufferings had become excessive, the eye felt as if it would burst out of its socket, there were sickness and vomiting, and sight seemed all at once to leave her. When re-admitted to the ward the woman presented a very debauched appearance; there was intense lividity and chemosis of the ocular conjunctiva, the iris was pressed closely against the posterior surface of the cornea so that the anterior chamber was abolished, and the operation wound was bulging forward, and had opened at its outer angle, a fact that explained why, on admission, the tension of the globe was not markedly increased. The eyeball was intensely tender to the touch, and within forty-eight hours, during which there was much sickness and vomiting, a yellowish reflex appeared in the pupil, and it was thought that the eyeball was going to suppurate. No actual pus, however, appeared, and after about three weeks pretty continuous suffering, the pain began to get less and the globe to soften, and in about two months the patient left the hospital free from pain, but with the eyeball slowly shrivelling. In this case it is probable that the eye was predisposed to glaucoma, and that the prolapse of the iris determined the attack, which assumed such an acute form, and ran such a rapid course, owing to the patient's free indulgence in alcohol.

2. *Glaucoma and Myopia.*—Short-sighted persons are, as a rule, immune from inflammatory attacks of glaucoma, but a moderate increase of tension sometimes occurs in eyes in which the myopia is progressive, and as the optic disc suffers from the increase in the intra-ocular pressure, the deterioration in the visual acuity becomes very markedly accentuated. Although considered here specially, on account of its importance, there can be no doubt that the glaucomatous symptoms are superadded to the choroidal changes which characterise malignant myopia, and this leads me to state that increase of tension may occur in the course of many eye affections, and when it does occur, it so modifies the primary disease that the high tension becomes the serious point in the case. Hence we speak of secondary glaucoma in contradistinction to those cases of which I have just been speaking in which the disease is primary—*i. e.*, cannot be accounted for by any disease previously existing in the eye. The clinical picture presented

by it, therefore, is a well recognised and a fairly constant one, whereas, in secondary glaucoma, the appearances presented are, in all cases, modified by the antecedent disease from which the eye has been suffering, and upon which the glaucomatous process has been, as it were, grafted. It is unnecessary to do more than simply enumerate some of the principal diseases which it may so complicate. It may arise as a result of injury. For example, in burns at the corneo-scleral margin, in wounds of the cornea, with prolapse of the iris and injury to the lens, especially in a patient advanced in years, or symptoms, of which high tension is the most important, may arise from the dislocation of the lens into the anterior chamber. Again, it may arise in the course of, or form the sequel to, disease in any part of the eyeball—in perforating ulcer and staphyloma of the cornea; in serous iritis, from the abnormal secretion of fluid, and in plastic iritis when the pupillary margin becomes sealed completely to the lens capsule, and fluid accumulates behind the iris. Increase of tension at once occurs whenever a sarcoma of the choroid involves the ciliary region, or even before that if, as a result of the irritation due to its pressure, complete separation of the retina has been produced. Increase of tension is not common in retinal affections as a rule, and when it occurs along with separation of the retina, it usually indicates the presence of an intra-ocular growth. It sometimes, however, does occur in the advanced stages of pigmentary retinitis, and as has already been mentioned, an apoplexy of the retina is the forerunner of hæmorrhagic glaucoma.

PATHOLOGY OF GLAUCOMA.

What is the anatomical cause of the increased tension to which reference has so often been made is the question that now naturally arises, and, as a preliminary to its discussion, it may not be out of place briefly to describe the lymph spaces within the eyeball. These are divided into an anterior and a posterior set, of which the former includes the anterior and posterior aqueous chambers, the spaces of Fontana, and Schlemm's canal; and the latter the hyaloid canal and the perivascular spaces of the retina, which communicate with the lymph spaces of the optic nerve, these again opening into the intervaginal spaces. In addition, another set of channels from the choroid passes out of the eyeball, alongside of the *venæ verticosæ*, and afterwards communicates with the lymph spaces around the optic nerve. On examination of enucleated glaucomatous eyes it has been found that, in nearly every

case, the "filtration spaces" at the corneo-iritic angle were closed, on account of the adhesion of the base of the iris to the posterior surface of the sclerotic and the cornea, and hence the fluids secreted by the ciliary body, instead of circulating through the pupil into the anterior chamber, and then passing out of the eye through the spaces of Fontana and the canal of Schlemm, are retained within the eyeball, the tension of which becomes in consequence increased. In serous iritis glaucomatous symptoms may supervene, although the corneo-iritic angle remains wide and open, but in this disease the character of the secretions themselves is changed, and Brailey has demonstrated that, as a result of this, the spaces become blocked, and hence the filtration function is lowered. It has also been proved experimentally that the injection of oil into the anterior chamber will produce an attack of glaucoma, because the oily fluid closes up the filtration spaces, and from this fact Priestley Smith and others have argued that, in certain inflammatory affections, we have to deal not only with an increase in the amount of fluid, but also with an abnormal fluid which, from its highly albuminous nature, obstructs the excretory channels. The study of cases of secondary glaucoma leads then to the conclusion that the increased tension is due to the retention of fluids within the eyeball owing to hindrance of their outflow—in other words, there is a disturbance in the normal relation between the fluids secreted and those excreted.

Most of the old theories as to the causes of primary glaucoma were, however, based upon hypersecretion as opposed to retention. Mackenzie and Von Græfe, starting with this idea, attributed the increased secretion to serous choroiditis, while Donders thought it was due to irritation of the choroidal nerves—a neurosis of secretion.¹

The chief objection to the hypersecretion theory was, that when the existing channels were in good working order, any increase in the inflow of fluids was very soon counterbalanced by an increased outflow, and so the natural tension was maintained. Knies and Weber advanced a retention theory for primary glaucoma, similar to that just described, in connection with secondary glaucoma, and the general consensus of opinion now favours their idea. It was objected to the retention theory that glaucoma was found in eyes from which the lens had been removed, and in others in which the iris was absent, but

¹ Severe trigeminal neuralgia may precede or usher in a glaucomatous attack, and artificial irritation of the ciliary ganglion has been experimentally shown, in the case of the lower animals, to increase the tension of the eyeball.

Treacher Collins has set such difficulties aside by demonstrating that, in glaucoma following cataract extraction, the corneo-iridic angle was blocked by the entanglement of the capsule, the iris, or the hyaloid in the wound, while in cases where the iris seemed to be absent he has proved that there was merely an arrest of development whereby that structure, instead of appearing externally, remained merely as a rudimentary stump which, having become adherent to the periphery of the cornea, had closed the filtration spaces. In a paper, however, such as this, to enter upon theoretical discussion farther than may be necessary to make clear the principles of treatment, is obviously impossible. Those who wish to become familiar with the subject will find an excellent *résumé* in Dr. Berry's *Diseases of the Eye*, p. 383; and Professor Panas' *Maladies des Yeux*, vol. i, p. 496, *et seqq.* Many points are still undecided. Granted the increase of tension, there is no difficulty in explaining all the symptoms met with in a clinical picture of glaucoma, and, given the blocking of the filtration spaces, either anterior or posterior, it is easy to account for the increase of tension; but the real difficulty lies in finding a satisfactory explanation of the initial changes that lead up to those gross pathological lesions. Eyes, in the early stages are, of course, not available for pathological investigation; when examination becomes possible the stage is advanced and the glaucoma absolute, and then of course many of the lesions must be looked on as the consequence rather than the initial cause. In few diseases is the love of hypothesis more clearly seen, and a theory quite satisfactory to one set of observers is just the opposite to another, probably because none perfectly explains the clinical picture of every case. In a case of *retinitis pigmentosa*, in which sight was lost early, and which was complicated by intermittent attacks of severe pain, the result of high tension, I had an opportunity of subjecting the enucleated eye to microscopical examination, and found that the anterior filtration spaces were not much narrowed, but all the tissues round the optic nerve were very markedly sclerosed. It is not unreasonable, therefore, to assume that in some cases the initial degeneration of blood-vessels, with the consequent blocking of the lymph channels, may begin in the region of the optic disc, and lead to increase of tension, excavation, and atrophic changes in the nerve, with consequent impairment of sight, without any external manifestations of the glaucomatous process.

Some authors speak of an anterior and a posterior glaucoma, the former including those cases in which the external or

inflammatory signs are well marked, and the latter those which present no inflammatory symptoms, but in which there is excavation of the optic disc. The bond of connection between such diverse examples lies in the increase of tension, and many cases occur which mark a transition between the one group and the other. Von Græfe himself classed such cases under the title—"Amaurosis accompanied by excavation of the optic papilla;" and in the *Archives of Ophthalmology*, vol. xx, p. 475, Schweigger supports this view. The pathological distinction between glaucomatous excavation and cupping of the optic disc from atrophy pure and simple lies in the fact, demonstrated by Brailey, that in the former there is backward displacement of the *lamina cribrosa*, while in the latter that structure retains its normal position. As seen by the ophthalmoscope, also, the blood-vessels in the atrophic condition can be traced from the margin to the bottom of the cup, while in the glaucomatous they are hidden under the steep overhanging edges. In the former there is also no increase of tension, no pulsation of the retinal arteries, and an early implication of the colour sense.

In explanation of the initial causes of glaucoma, Priestley Smith has shown that the lens continues to grow up to the end of life, while the size of the eyeball, after a certain age, remains stationary. This being so, there must, with advancing years, be a corresponding diminution in the space round about the lens; and as glaucomatous eyes are, according to the same authority, smaller than normal, this disproportion must, in course of time, become all the more marked, till, after a certain point, the slightest congestion of the ciliary processes will obliterate the circumlental space altogether. When this happens, the lens is pushed forward by the increased pressure in the vitreous chamber, the base of the iris becomes closely adherent to the posterior surface of the cornea, and the filtration spaces at the corneo-iritic angle are so pressed upon that their excretory function ceases. With the retention of the fluids symptoms of glaucoma begin, and, as long as these channels remain closed, the disease will continue to progress.

There are, however, other factors that require consideration. For example—(1) glaucomatous eyes are usually hypermetropic, and, when the circular fibres of the ciliary muscle are hypertrophied, a still further narrowing of the circumlental space must occur; (2) as part of the general loss of elasticity in the tissues, so characteristic of old age, the sclerotic becomes more rigid, and will not therefore yield, to the normal extent, at a time of increased tension; (3) the

arteries, from the same cause, lose their natural elasticity, and degenerative changes take place in their walls; their length is in consequence increased, and the size of the ciliary body augmented, with the result that the circumlental space is again encroached upon. Considering, indeed, how closely glaucoma is allied to diseases such as gout, rheumatism, and probably syphilis, in all of which vascular changes are of frequent occurrence, and seeing that the primary form almost invariably attacks both eyes, it would seem as if the root of the evil were to be traced to that degeneration of blood-vessels which reaches its maximum in the hæmorrhagic types of the disease.

PROGNOSIS AND TREATMENT.

All experience goes to prove that glaucoma, when left to itself, invariably ends in complete blindness, and formerly the disease was looked upon as absolutely incurable. Mackenzie, who was the first to attach importance to the increased tension, tried puncture of the sclerotic as a mode of treatment, and obtained "a transient amelioration of vision as well as relief from pain." The improvement was, however, only transient; and when, in 1856, Von Græfe announced that the progress of this hitherto uncontrollable disease could be arrested, and even permanently cured, by the simple operation of iridectomy, the statement naturally attracted very considerable attention. Notwithstanding success in a large number of cases, there were those who doubted, and one reviewer of that day went so far as to suggest that many of the reported cases were not examples of glaucoma at all, but simply of inflammatory affections which would have yielded to ordinary methods. The operation treatment was at first purely empirical; but a fuller knowledge of the pathology of the process has furnished us with the *rationale* of its beneficial action, and iridectomy in glaucoma is now one of the canons of ophthalmic surgery. Treacher Collins has clearly shown that a successful iridectomy either opens up the filtration area in the region of the coloboma through which the aqueous may escape, or else establishes a fistulous opening, or a cystoid cicatrix, through which the intra-ocular fluids may filter during a time of increased intra-ocular pressure. Exner, also, has pointed out that after an iridectomy there is, at the border of the coloboma, a direct arterio-venous anastomosis, and so blood from the arteries passes at once into the veins without the intervention of the capillaries; and this alteration in the circulation of the iris has been regarded as a factor in

reducing intra-ocular tension. The aim of all treatment in this disease is to diminish the increased tension of the eyeball, and our therapeutic measures may be divided into the palliative and the curative.

1. *Palliative Remedies.*—Drugs which contract the pupil act beneficially in reducing increased intra-ocular tension, and the myotics in most general use are eserin and pilocarpin. These do not lower the tension in a healthy eye, and their favourable action in glaucoma depends upon their power of drawing the iris away from the corneo-iritic angle, and so opening up the filtration spaces and permitting the freer circulation of the intra-ocular fluids. The sulphate and the salicylate of eserin are the salts most frequently employed, as they are soluble in water, but the pure alkaloid may be used dissolved in castor oil. The solution ought always to be freshly prepared, and ought just to be sufficiently strong to cause the pupil to contract, and the instillations should be repeated as often as is necessary to keep it contracted. The usual strength is about 1 grain to an ounce, but even this may cause very severe pain in the eyeball, and its prolonged use gives rise to conjunctival irritation. Pilocarpin is not such a powerful myotic as eserin, but the solution of its salts (nitrate) is more stable; it rarely irritates the conjunctiva, and it never gives rise to painful contractions of the ciliary muscle. It is good practice to combine eserin or pilocarpin with cocain, as the latter possesses the power of producing contraction of the blood-vessels, and of relieving pain; and hence the good effects of the myotic are much increased, provided, of course, that it retains mastery over the pupil. A good mixture to employ is eserin, 1 to 5 per cent, cocain, 2 per cent, with boracic acid added to preserve the solution. As long as the pupil is kept contracted the drug does good, but its effects are transient, and whenever the contractive power ceases the good influence is lost. Myotics undoubtedly are of most service in the premonitory stages, in which the timely instillation of eserin may at once cut short an attack; and its regular repetition may hold the disease in abeyance for a considerable time.

Mydriatics are just as harmful in primary glaucoma as myotics are useful. An acute attack has followed the instillation of a single drop of atropine solution into a predisposed eye, and it is a good rule in practice never to prescribe atropine to a patient over 40 years of age, without first making certain that there is no increase in the tension of the eyeball.

When the disease is acute it is necessary, in addition to the use of eserine, to relieve pain and subdue inflammation by the application of fomentations and of leeches, and a hypodermic injection of morphia in the temple ought always to be given when the patient's sufferings are severe. Chloral, from its power of lowering intra-ocular tension, is especially indicated to procure sleep, and I have often seen very marked benefit follow its use; but the combination of morphia and of chloral must be avoided, as poisonous symptoms might ensue, because the one intensifies the narcotic action of the other. The bowels ought in all cases to be freely moved, and constipation carefully guarded against. Any abnormal constitutional state ought, as far as possible, to be rectified, and remembering how much anything which lowers the circulatory powers has to do with the causation of glaucoma, the patient ought to be kept warm and well fed.

2. *Curative Remedies.*—At the best, however, these remedies are merely tentative, and although the long natural history of a case of chronic glaucoma prevents one from estimating accurately how much good they do, and how much they really prolong the course of the disease, yet it may safely be said that no case was ever cured by their means alone. The only cure is an iridectomy performed at the proper time, and satisfying the following requirements:—

(1) The incision ought to be large and wholly in the sclerotic about 1 mm. behind the corneal margin. The knife used may be either a keratome or a linear section knife, according to the choice of the operator. A keen edge is more important than shape.

(2) The aqueous ought to be allowed to drain off slowly.

(3) The loop of iris to be excised should be carefully pulled out of the wound, snipped on one side, then torn away from its ciliary attachment along the whole length of the wound, and afterwards cut off by another snip. If a corneal incision be made, and the iris drawn out and cut off by one snip of the scissors, more harm may be done than good. The iris bleeds freely, and is always very sensitive, so that, if chloroform has not been administered, this stage of the operation is very painful.

(4) The corners of the cut iris must be carefully replaced, in order that, if possible, no tags may become adherent to the wound.

The operation ought to be performed as soon as possible after the diagnosis of glaucoma is clearly established; and although this remark applies principally to the inflammatory

forms of the disease, it also holds true of the simple non-inflammatory. Before commencing to operate it is well, in all cases, to instil eserine into the sound eye, as an iridectomy has sometimes determined an attack of inflammatory glaucoma in the other eye, a result due, not so much to the operation itself, as to the nervous shock that so often follows surgical treatment. Delay is dangerous, because vision may be completely lost after a single inflammatory attack, and even in the milder cases where the patient regains sight after a few days, the recovery is never complete, and each succeeding relapse leaves greater blindness than before. The most that we can expect to do is to restore vision to that point at which it was before the occurrence of the inflammatory attack immediately preceding the operation. Unfortunately, however, a good result does not always follow an iridectomy for glaucoma; on the contrary, some cases exhibit worse vision after the operation than before it. This untoward issue is best avoided when surgical intervention takes place at a time when the iris is sufficiently healthy to react perfectly to eserine, and when its base is simply in contact with, and not adherent to, the posterior surface of the cornea.

When failure does occur it is due to one or other of the following causes:—

(1) *Wounding of the Lens.*—When the anterior chamber is unusually shallow and the lens pressed forward, it is sometimes difficult to introduce the knife, and the point may come into contact with, and rupture the lens capsule, with the result that a cataract will form; or, more especially in eyeballs which have become distended, as in buphthalmos, the ligament of the lens may be so loose that, whenever the aqueous escapes, the lens is driven forward, and the force is sufficient to rupture the zonule and dislocate the lens, which may present itself in the operation wound and require to be extracted.

(2) *Hæmorrhage.*—It has been demonstrated that capillaries which are shut off for a time from the general circulation, are liable to rupture when the blood stream is again turned into them, and a very typical example of this condition has already been cited (see p. 245). In cases in which vascular degeneration is advanced, hæmorrhage may occur either at the time of the operation, or possibly not till weeks after. When it makes its appearance late it must be regarded as quite accidental, and not directly dependent upon the operation, but whenever it does take place, vision becomes correspondingly deteriorated, and may in bad cases be totally extinguished.

(3) *Large Size of Coloboma of Iris.*—This, by admitting too large an amount of light into the eye, may cause unpleasant blurring of the vision, which can be best overcome, when the iris is not too atrophic in this situation, by performing the iridectomy upwards, so that the coloboma shall be as much as possible under the curve of the upper eyelid.

(4) *Astigmatism.*—As a result of the operation wound the curvature of the cornea is altered and more or less astigmatism results, but as a rule this defect is easily remedied by suitable glasses.

(5) *Contraction of Visual Field.*—Von Græfe himself noticed that when a marked deterioration of vision occurred soon after an iridectomy, the visual field had, before the operation, been contracted nearly up to the fixation point, and became further encroached upon by the constriction that subsequently occurred. Such a result is very disappointing, as the loss of central or direct vision renders the patient, who was before probably able to read, now practically blind. In one case of this kind on which I operated about eighteen months ago, the iridectomy wound, instead of healing rapidly, took several days to close, and the anterior chamber remained shallow.

(6) *High Tension may Persist.*—This is especially liable to occur in those cases in which the disease is of long standing, and in which, in consequence, inflammatory changes have become well established at the corneo-iritic angle. As a result of the close adhesion of the iris base to the cornea, its complete removal up to the periphery is at times impossible, and a portion remains obstructing the filtration area; and when, as often happens in such cases, the cut ends of the iris adhere to the wound, these channels are likely to become still more firmly blocked. Here it is obvious that no good can be expected from the operation, and unless something more can be done, vision steadily deteriorates.

(7) The case may turn out to be one of *malignant glaucoma*; and the iridectomy be followed by severe inflammatory reaction. The eye becomes acutely painful and vision is speedily lost. In connection with such cases, which, fortunately, are very rare, Schweigger says that "the cause of the unsatisfactory results of the operation must be in some obscure structural anomaly inherent in the eye itself," and as a result of his own experience he has formulated the following rule:—"When glaucoma malignum attacks one eye it follows iridectomy in the other eye, even when the second eye is not affected for years after the first." He also says that "experience teaches

us that in all cases of chronic glaucoma affecting both eyes, it is advisable first of all to operate upon the worse one, even if it should be absolutely blind. Should this be followed by the normal healing process, the second eye may be operated upon without the least apprehension."

De Wecker, on the supposition that the formation of a cystoid cicatrix played the largest part in preventing abnormal increase of intra-ocular tension, considered the section of the sclerotic of more importance than the excision of the iris, and he has given definite instructions for the performance of a sclerotomy. As performed by him, this operation consists in making an incision in the sclera with a linear knife at the periphery of the anterior chamber and in leaving the iris intact. This method of treatment is not so often adopted now as it was some years ago, because most operators, after experience of it, feel that, however useful sclerotomy may be as an adjunct to iridectomy, the latter is to be regarded as the operation after which the more perfect result is to be looked for. In sclerotomy the great danger to be feared is prolapse of the iris, but it may be selected in cases in which the anterior chamber is unusually shallow, or when there is reason to fear the occurrence of hæmorrhage. Its chief usefulness is, however, to be found in those cases in which an iridectomy has already been performed with an unsatisfactory result, and here a sclerotomy may completely relieve tension and subdue pain. Moreover, if necessary, it is an operation which can be frequently repeated.

In cases where the pupil is dilated and will not contract with eserine when the iris is atrophied and the anterior chamber very shallow, puncture of the sclerotic, about 5 mm. behind the corneal margin, to permit of an escape of vitreous and the formation of a leaking sub-conjunctival scleral wound, is sometimes attended with very satisfactory results; and Priestley Smith has recently recommended that posterior scleral puncture should be performed preliminary to iridectomy, and affirms that by the combination of these two operations he has been enabled to deal with special cases more satisfactorily than he could otherwise have done.

Finally, when an eye is blind from glaucoma, but continues to be painful in spite of all treatment, nothing but enucleation remains if the patient is to be relieved from his suffering.

CLINICAL MEMORANDA,
BEING SELECTED CASES FROM THE WARDS OF

DR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY W. ERNEST THOMSON, M.D.)

XIII.

27. Dislocation of Cervical Vertebrae; Compression and Softening of the Cord with Central Hæmorrhage.

H. C., aged 69, an engine-fitter, was admitted to Ward II on the 21st January, 1895, in a semi-conscious condition. A friend who accompanied him stated that patient had fallen back suddenly in his chair while playing dominoes in a public house; that he was not intoxicated at the time; and that he was not a heavy drinker. The *post-mortem* examination, however, left considerable doubt as to the truth of these statements, as will be seen on reference to the account of it.

The observations made immediately on admission were that he was only partially conscious, with equally contracted but reacting pupils; that he could move his arms, which seemed stiff on manipulation, but apparently could not move his legs, which were quite flaccid on manipulation; that he could feel a pin-prick both on the legs and arms, and that he suffered pain when moved.

Some hours later he became more conscious, and complained of pain all over the body, but of especial severity at the back of the neck and between the shoulder blades. He cried out loudly if turned over, and when any pressure was put upon the chest.

He was kept warm with bottles and hot flannels. An attempt was made to evacuate the bowels, and the urine was withdrawn. During the night, owing to signs of failing respiration and circulation, a hypodermic injection of strychnine and ether was administered with good effect.

On making a more detailed examination next day (22nd January) it was found that the surface of the trunk and of the extremities was cold, the heart slow and of feeble character, the respiration shallow. Both legs and the left arm were completely paralysed, the right arm almost completely. Sensation was absent from the legs, from the trunk below the level of the second rib, and from the arms below the middle of

the upper arm. The face was not affected either as regards motion or sensation.

The provisional diagnosis made by Dr. Anderson was a hæmorrhage, more probably in the centre, than on the surface, of the upper part of the cord.

On the morning of the 23rd the patient suddenly died asphyxiated.

Post-mortem Examination.—“Summary.—Dislocation of cervical vertebræ, compression and softening of the cord with central hæmorrhage. Fibrous transformation of the heart. Atheroma of the coronary and cerebral arteries. Slight subarachnoid hæmorrhage.”

Examination of the dislocated part showed that complete severance of the bodies of the fifth and sixth cervical vertebræ with laceration and disintegration of the intervertebral disc, had taken place. The hæmorrhage mentioned in the summary extended in the central canal of the cord for some distance above and below the softening.

Note.—No account of any violence such as would produce dislocation of the vertebræ was given in the history. The case was reported to the Procurator Fiscal, and the following is the history of the case before admission, as supplied by the police:—He had been sitting alone in a public house for about two hours, and there had been no noise in the room, and no suspicion of his having been injured while there. He was found sitting before the fire in a drowsy and stupid condition, and paralysed to the extent stated in the body of the report. It is to be regretted that a more exhaustive investigation was not made by the police, as there is reason to fear that the whole of the facts have not been elicited.

28. *Cerebral Disease, probably Malignant.*

Mrs. H., aged 25, was admitted to Ward VII on 16th January, 1895, complaining of vomiting and frontal headaches of six months' duration, and of pain over the right side of the face and in the right eye, of a fortnight's duration.

The family history is unimportant in character, and the patient herself has hitherto been healthy. She was confined two months before admission.

The present illness began with sickness and vomiting, which, however, was preceded by intense frontal headache, about the fifth month of pregnancy. The symptoms failed to abate after confinement, and about three weeks ago, that is five weeks after child-birth, she one day found her sight becoming dim in the right eye. The next day the eye, she

says, was blind. For a fortnight before admission she felt pain in the right cheek, which extended to the region behind the ear, and down the side of the neck, and was accompanied by tenderness on pressure. Since a week before admission there has been total deafness on the right side, which began two or three days previously with slight dulness of hearing. For two days before admission the sight of the left eye has been less acute.

The only objective signs which were made out on examination, after admission, were loss of both knee reflexes, slight facial paralysis on the right side, and the signs relating to the eye and ear.

The examination of the eyes by Dr. Hinshelwood revealed, besides impairment of vision in both eyes, the following facts:—The pupils were dilated, the left especially so; the movements of the iris to light and accommodation were present, but sluggish. Paresis of left external rectus, and of the right superior rectus, was apparent. [Note by Dr. Ernest Thomson: Some days later there was distinct paresis of the right external and inferior rectus.] With the ophthalmoscope Dr. Hinshelwood ascertained that there had been an acute neuritis in the right eye, and that there was present an acute neuritis of the left optic nerve.

The aural examination was made by Dr. Barr, who reported that in the canal of the right ear there was a slight prominence projecting from above, like an exostosis, but softer. Some old inflammatory mischief had caused adhesions of the membrane, but not sufficient to cause the deafness.

Progress of the Case. By the 18th January the facial paralysis had become more complete, and was accompanied by partial ptosis; food had a tendency to lodge between the right gum and cheek.

By the 22nd the facial paralysis was again less evident, and the ptosis had disappeared.

On the 7th February a rounded, firmish, but not hard, painful swelling was found occupying the region of the right zygoma. After a day or two it became more prominent, and was punctured with a hypodermic needle, with a negative result. The acuteness of vision of the right eye gradually decreased with the pain in the eye, and the headache increased, and at times became extremely severe. Shooting pains in both legs also developed, and with such severity that the patient was afraid to move.

At her own special request, and having in view the fact that she frequently disturbed the whole ward by crying out

during the paroxysms of pain, she was dismissed on 13th February, and returned home.

Diagnosis.—It was hoped, when the patient first came in, that the lesion might be of a syphilitic nature, although it seemed more likely to be malignant. The patient, however, was given the benefit of the doubt, and mercurial inunction was ordered for her. As soon as it became apparent that the disease was progressing, and was not to be influenced by anti-syphilitic remedies, the inunction was stopped, and treatment simply directed to the relief of pain.

THE THERAPEUTICS OF SYDENHAM.

By DUGALD MITCHELL, M.D.

IN a science such as that of medicine, which claims so many votaries with very varying degrees of capability, and which permits in the individual so much freedom of initiative, it will ever be found necessary, now and again, for some leading mind to call a halt, and bring back practitioners from their devious wandering paths to the more definite recognition of first principles. He who emphatically performed that function for the profession in the seventeenth century was the illustrious Sydenham. The necessity for holding frequent converse with Nature, and enquiring into her efforts and methods for the healing of disease, was ever present to his mind, as was also the need for the closest observation of the natural history of disease. Having himself learnt the lesson of having regard to the intentions of Nature, and of assisting her in her efforts (as Hippocrates had taught so long ago), he sought, above all, to impress on his contemporaries the fact that more could be left to Nature than they were in the habit of leaving her. "To imagine that she always wants the aid of art is an error, and an unlearned error too," he writes, while he insists that the end would oftener be attained "if Nature were not diverted by ignorant men from the straight way that, of herself, she holdeth." "The sick man dies of his physician" was a favourite, though somewhat uncomplimentary, phrase of his. Speaking of fevers and of the risk of setting up, on insufficient grounds, some different method of cure from that he believed to be indicated by Nature, he says the indications of treatment "follow one of two general lines.

Either we must accurately follow the way taken by Nature in the annihilation of the disease, and be content with lending subsidiary aids, or we must substitute for it a method of our own from our own resources, safer than that of Nature's, and different from it, putting no faith in the former mode of warfare against our intestine enemy."

His remarks on meddlesomeness in the treatment of small-pox, especially in the young, are also very pointed, and very emphatic. "Nature, left to herself, does her own work at her own rate, both secreting and expelling the morbid matter in due course and time; acting best where she acts on her own resources; being best supplied when she relies on her own ways and means; best instructed when she trusts to her own mother-wit; wholly independent of all our arts, all our aids, and all our contrivances."

One form of meddlesomeness, however, must be laid to his own charge—viz., his practice of insisting on patients rising from bed for a considerable time each day. In pleurisy, scarlet fever, small-pox, &c., &c., it would seem to us as if the patients were forbidden the rest necessary to recovery. This moving about he believed to be specially helpful in the suppression of urine in small-pox. "I have had recourse," he tells us, "to the whole tribe of diuretics in vain. Nothing has answered me as well as to take the patient from his bed, to support him on the arms of the bystanders, and to walk him two or three times round the chamber. Do this and he will speedily pass his water abundantly, and be much relieved by doing so." That it is, indeed, difficult to micturate in the recumbent position most people will have personally realised, and doubtless any position or movements favouring pressure on and irritation of the neck of the bladder would tend to facilitate the act.

That effective treatment could only be carried out after close observation of the natural history of the disease was abundantly evident to Sydenham. "That practice," he says, "and that alone, will do good which elicits the indications of treatment out of the phenomena of the disease itself." And so we find that he did not believe it was new remedies that were wanted, but more exact knowledge as to the particular indications that want satisfying. With him, in infectious diseases, for instance, the great question was, How does the febrile poison enter the system, and how is it to be ejected? Is it to be by bleeding, by sweating, by purging, by abscesses, by emesis, or any other of Nature's methods? Evacuation was the foundation of treatment, and perhaps in this respect

his practice was better defined than is the practice of the present day.

Realising as he did that therapeutics constitute the ultimate aim of the whole practice of medicine, he was, of course, fully impressed with the great practical importance of any improvement in the art of healing. He says—"I have ever held that any accession whatever to the art of healing, even though it went no further than the cutting of corns or the curing of toothaches, was of far higher value than all the knowledge of five points, and all the pomp of subtle speculations—matters which are as useful to physicians in driving away diseases as music is to masons in laying bricks."

In these days of abounding quacks and patent medicines, it is refreshing to come across such a paragraph as the following on the dishonour attaching to the concealment of the constituents of so-called remedies:—"In sober sooth, I consider that any man, if such there be amongst mortals, who, either by any sure line of treatment, or by the application of any specific remedy, can not only control the course of these intermittents, but cut it short altogether, is bound by every possible bond to reveal to the world in general so great a blessing to his race. If he withhold it, pronounce him at once a bad citizen and an unwise man; since no good citizen monopolises for himself a general benefit for his kind; and no wise man divests himself of the blessing that he may reasonably expect from his Maker when he girds his loins for the welfare of the world. Honours and riches are less in the eyes of good men than virtue and wisdom."

Having seen the principles which underlay Sydenham's treatment, it will be well to glance, if somewhat hastily, at a few of his therapeutic indications as being illustrative of the most scientific methods of his day. Venesection was, of course, in high repute, and his usual practice, in the ordinary run of cases, was to bleed the patient four times, and on alternate days. In erysipelas, besides bleeding, he purged, and on the alternate days gave milk enemata and cooling medicines. As an external application Venice treacle, combined with several other drugs, was employed. This treacle, with its sixty-five different ingredients, had in it several gums, which would have been effective in excluding the air, quite in conformity with our modern requirements. Apoplexy was treated by bleeding from the arm and jugular veins, giving an emetic, applying a blister to the nape of the neck, using smelling salts, giving a julep, and, "when the fit was over," an opiate. Venesection he practised also in pertussis and infantile

convulsions, and, with regard to the same practice in pleurisy, it was his belief that he thus got the morbid matter much better away than by trusting to expectoration—"an opening in the arm does the work of a windpipe." Externally, in this latter disease, he employed a liniment composed of marsh-mallow and an oil of lilies, which was rubbed in night and morning, and a cabbage leaf laid over the part. In chest diseases generally, linctuses, pectoral decoctions, and oil of sweet almonds were had recourse to. The latter may possibly be looked upon as the precursor of cod liver oil, and we find Sydenham recognising, as we do with regard to cod liver oil, that from its heating properties it should not be prescribed in feverish conditions.

In tubercular peritonitis he recognised the value of a liniment composed of several oils and fresh butter, and applied with friction to the abdomen. Almond oil he prescribed frequently, to assist in the propulsion of stone along the ureters—a practice that may be compared with the modern one of giving draughts of olive oil for the relief of colic from the passage of gall-stones. The medicines recommended in diabetic conditions partook very much of the poly-pharmacy type, a fact which may always be taken to indicate uncertainty as to the proper line of treatment. Two of the compounds—viz., dioscoridium and Venice treacle—agreed in this, however, that they both contain opium; and to this constituent we should probably trace any good results that may have accrued from their use. Sydenham's use of opium in diarrhoea and allied diseases was quite in accord with modern practice. He cleared out the bowels with a mild laxative, such as rhubarb, and then sought to bind up with laudanum. In addition, in dysenteric cases, he drenched the patient with whey both by mouth and rectum, thus attempting to cure by an imitation in some sort of that evacuation by which nature was wont to expel the poisonous matters of the disease. His treatment of cholera proceeded on very similar lines, and it is questionable if our management of this disease is any further advanced than he left it. If seen early, he recommended the washing out of the stomach and intestines with copious but very dilute draughts of chicken broth, copious clysters of the same also to be persevered with. After three or four hours, he then endeavoured to bind with laudanum.

"Luck has ennobled many a worthless medicine," he declares; but as to the value of opium he had no doubt, and it is thus he

extols it:—"And here I cannot but break out in praise of the great God, the Giver of all good things, who hath granted to the human race, as a comfort in their afflictions, no medicine of the value of opium, either in regard to the number of diseases it can control or its efficiency in extirpating them. . . . So necessary an instrument is opium in the hands of a skilful man, that medicine would be a cripple without it; and whoever understands it well will do more with it alone than he could well hope to do from any single medicine." Such an opinion may very well be endorsed even at the present day. Sydenham was, however, quite alive to the fact that in certain conditions its use had to be carefully guarded, as when he says he has noted that in fevers it does "violence to the processes by which the morbid matter is separated." And so also with regard to its influence in diminishing expectoration, of which fact he was also aware.

In the use of alcoholic stimulants he placed little reliance, and what he did prescribe was, as a rule, of the mildest type, such as small beer and Canary wine.

A curious belief of his was as to the great value of applied animal heat in depressed conditions. Its practical application must have been decidedly inconvenient not unfrequently, for his recommendation was that boys or girls, according to the sex of the patient, were to be sent naked to bed with the sick person, and caused to lie up against him or her, back and front. His belief was that, by such applications, a "notable supply of fresh effluvia from a sound and athletic body may be transferred into a sick and exhausted one," and that they were more congenial to the human frame, being "bland, humid, equal, and permanent."

His treatment of hysterical conditions was similar to that of other practitioners of his time, being pretty much confined to the burning in the sick room of hides, feathers, hartshorn, urine, &c., "hysterical medicines which are of strong and foetid odour, and which will remand back to their proper places the exorbitant and wandering spirits." Such, it was supposed, was the mode of action of all medicines of this unpleasant class.

There were 6 cases of twins. 75 of the women were primiparous.

The abortions gave very little trouble. In one I had to curette out the uterus before the hæmorrhage ceased.

We had one case of pseudocyesis. Patient was a multipara, aged thirty-seven. Five pregnancies, one twins, five years ago. Menstruation had ceased in August, 1893. She began to grow stout, milk appeared in her breasts, and she professed to have quickened in due time. In the beginning of May pains came on, and she sent for assistance. She was seen by a student, and she asserted he told her the head was coming all right. He did not report anything about the case, so I cannot say what opinion he had formed. As no head appeared she became alarmed, and sent for me on 31st May. I found the abdomen distended, and tympanitic all over. No bruits audible. Per vaginam, the cervix was small, uterus normal in shape and position, but it seemed slightly atrophied. It was undoubtedly a case of a rather early menopause.

Post-partum hæmorrhage we had no cases.

The placenta and membranes were adherent nine times. Two cases were specially bad:—

CASE I.—Multipara. The child was born without any difficulty. The placenta was so completely adherent to the posterior wall of the uterus that I had the utmost difficulty in stripping it off, as it was almost impossible to distinguish placenta from uterine wall. She was very anæmic from loss of blood, and was quite drunk at the time. I douched with perchloride of mercury. On the fourth day her temperature was 103.4° ; abdomen tender and distended. I douched the uterus again, poulticed, and gave quinine and Dover's powder. The temperature quickly fell, and she made a good recovery.

CASE II.—Primipara. Child born easily two and a half hours before I reached her. I gave her chloroform, and found the placenta very adherent in the right horn of the uterus. Douched. She was phthisical. Her temperature remained high—over 100° —for six days. The uterus was douched out several times, and she had quinine and Dover's powder. She made a good recovery after that.

Her child had an attack of ophthalmia, and was treated for it by the students attending. When they gave the case up the eyes were apparently all right. Some three weeks later the mother brought the child to me with one of its eyes very bad. I sent her at once to Berkeley Street Eye Infirmary, but it was too late to save the eye. The other eye was saved.

This is the only case of an eye being lost, so far as I am

aware, during the four years, and it was lost from gross carelessness on the part of the mother. She never used the lotion after the students discontinued their visits.

In one case the child was born with an imperforate rectum. It was a male child, born naturally. Nurse noticed it was jaundiced. It was small, but well nourished. Urine was freely passed, but no meconium. As nothing had been passed for the first forty-eight hours, nurse asked me to see it before she should give it a purgative. I found it was of a yellowish tint all over, the abdomen distended, but no evidence of any acute discomfort; no vomiting or crying. The anus was present, but on introducing my little finger I felt a septum occluding the rectum about half an inch up. There was no bulging to be made out. I sent the child into the Children's Hospital at once, and Dr. Fleming operated. As he could not make out any bulging through the septum, he opened the sigmoid flexure, intending, if it survived, to pass a probe down against the septum and cut down on it from below. The child lived four days. The following is Dr. Coats's report of the *post-mortem*, which I am able to give through the kindness of Dr. Hunter, the then resident:—"The rectum is greatly distended, the distension beginning just where the sigmoid flexure passed into the rectum. The distension is such as to give a diameter of $1\frac{1}{2}$ inch. A probe introduced into the anus is completely stopped five-eighths of an inch from the orifice, and on cutting up the rectum it is found, at this point, to be entirely impervious, the mucous membrane going smoothly over the cul-de-sac. There is not even a distinct cicatrix visible. The distended rectum contains a semi-fluid brownish matter."

FATAL CASES.

CASE I.—Multipara, aged 28, third confinement. Premature, at seventh month. Labour was normal, and the child lived several hours. On the third day the temperature was 97° ; pulse very rapid and weak. She complained of great pain over the stomach, and vomited everything taken. The tongue was covered with a thick white fur. The abdomen was distended, but there was no pain over the uterus, and the lochia were sweet. Crepitations were heard all over the right lung. On enquiry, I found she had been addicted to drink for a long time, and her husband stated that she had been drinking very heavily for over four months. In fact she had hardly been sober a day since the Fair, and had often slept

in closes. Mustard poultices were applied over the stomach, and a sedative mixture of bismuth, morphia, and hydrocyanic acid given. Nutrient enemata were given. About midnight she became very low, pulse feeble and intermitting, and muttering delirium. Mustard was applied over the breast, and digitalis and ether given every two hours. She rallied considerably, but next night she grew worse, and died on the fifth day. The lochia remained sweet and copious throughout, and there was never any tenderness over the uterus. The death was due, I believe, to acute alcoholic poisoning. She had been suffering from great pain in the stomach and vomiting for some time before the confinement, and had, as is usual among this class, called in several of the medical men in the district. Her temperature remained subnormal throughout.

CASE II.—Multipara, second confinement, aged 22; delivered of a six months' foetus by nurse. She was in the last stage of phthisis in both lungs, and was emaciated to a degree. The cough was very troublesome. A soothing mixture relieved her distress, but on the following evening she became very restless, and suddenly expired.

We had another case of advanced phthisis in a primipara, aged 21. Both her lungs were affected, and she was wasted away to a perfect skeleton. Inertia uteri came on in the second stage, so I delivered with forceps. The child had been dead for some little time. She had a normal puerperium, and was alive and considerably improved a month later.

On 28th February I delivered a woman of her ninth child with forceps. The head was in the pelvis. During the puerperium she was troubled with a cough, and I found there was chronic bronchitis. Nurse ceased visiting her on the twelfth day, as she was apparently recovered from the effects of the confinement. The cough was easier. She complained of some pain in one thigh, which had been present before the labour. There was no swelling or tenderness. On the 24th March, three and a half weeks after the labour, I received an urgent message to see her, and when I reached the house found her dead. In the morning, when her husband went to his work, she told him she was feeling pretty well, but just before noon, while lying in bed, she was suddenly seized with breathlessness, threw her arms up, and expired almost immediately. Death was evidently due to embolism. She had kept her bed most of the time since the nurse had ceased visiting her, as the pain in the upper and back part of the thigh had prevented her walking. I had not seen her after she was put off the books, but after death the leg did not show

any appearance of thrombosis. As there was no *post-mortem* examination, one cannot say definitely where the embolus came from, but I suspect it must have had its origin in a thrombus in the uterine veins. The pain she had complained of had been present before the confinement, and as it was apparently along the sciatic nerve, it was probably sciatica. There had not been any post-partum hæmorrhage, which so often predisposes to thrombosis, but the woman had been in a feeble state of health for some time.

Cases of high temperature were very rare. In one primiparous case, delivered with forceps, it remained persistently high for a fortnight, being as high as 104.5° , and never under 100° . She maintained all through that she was feeling very well. She had no pain, and the lochia were sweet. I douched the uterus several times with perchloride of mercury, and kept her on quinine. On the fourteenth day she got up and insisted on going out, although her temperature was 102° . We gave up the case then, as somebody else was called in. I believe she was very ill for some time, but ultimately recovered. I never could find any cause for the high temperature. There was no apparent peritonitis, and no septic absorption that we could discover. She was a strong young woman, and showed no indication of tubercular mischief in the lungs. The house was a fairly good one, up a stair.

CONTRACTED PELVES.

CASE I.—Multipara, third pregnancy, aged 24. In my last report I gave particulars of craniotomy on her first child on 16th May, 1893. In the beginning of January, 1894, she had an abortion at the third month. Menstruation ceased on 2nd April, 1894. I had decided to induce premature labour at the end of the seventh month—*i. e.*, on the 7th November—but unfortunately was suffering from a poisoned hand. On the 13th Dr. George Marshall kindly took the case in hand, and passed a bougie into the uterus at noon. In twenty-four hours the os would admit three fingers, and by 5 P.M. it was fully dilated, and the membranes ruptured spontaneously. At 6.30 P.M., although the pains were good, the head had not engaged. I put her under chloroform, and Dr. Marshall applied axis traction forceps, but on using considerable traction it slipped over the head without bringing it down at all. It was reapplied and came away again. He then turned without any difficulty, and delivered the head readily, but it was very much compressed laterally, being quite flattened. The forceps

had not injured the head. The child gave a gasp or two, but we could not resuscitate it. It was a large one for a seven months'. The perineum was slightly torn, and required a deep and superficial suture. She made an excellent recovery.

CASE II.—This was also a woman for whom I had done craniotomy once, and induction of premature labour twice. The second premature labour is recorded in my first report. Her husband had died of phthisis before I induced labour the last time, and as she had had three dead children at full time and two premature labours, she vowed she had had enough of married life; but, alas for the frailty of women, she did not remain a widow much over a year. She came into my rooms one evening saying she was feeling very ill, and thought she was going to have a mishap. I found the os was dilated, and the membranes and breech of a foetus were protruding into the vagina. I sent her home at once, and delivered a small six-months' foetus without any difficulty. It was alive, and breathed and cried faintly for about half an hour. It is almost time for her to be putting in an appearance again in a pregnant condition.

MONSTERS.

One child was born with a very large meningocele. It was alive, and lived for several hours. The labour was a normal one, conducted by two lady students. There was also an anencephalous foetus born at the fifth month.

In one primiparous patient the nurse was surprised to find the perineum completely torn before delivery. Some years before, in Ireland, in getting over a hedge the patient had landed on a stake with disastrous results. It had been repaired in the Belfast Infirmary, but the stitches had not held. The operation has since been done successfully by my friend Dr. Beatson.

The perineum was never torn into the rectum, and in every case where it was stitched at once good union was got. During the four years we never had a complete rupture, nor did any fistulæ form. The worst rupture of all was in a normal labour, where the tear began behind and extended forwards. This case was reported last year.

SUMMARY OF THE FOUR YEARS' WORK.

During the four years, we attended 1995 full term labours; 102 premature and 64 abortions, making a total of 2161. The

operative cases were—Forceps, 121; version, 21; craniotomy, 2; induction of premature labour, 2.

The small percentage of contracted pelvis is worthy of note. There were only three patients who could not be delivered at full time without sacrificing the child, and yet all our patients were of a class among which deformities are common. It may be imagined that I was in the habit of sending difficult cases into hospital, but that is not so. In my first year I sent in a primipara in a comatose condition from eclampsia before labour had set in. The room she occupied was in a cellar, and destitute of any comforts. The only other case was one of contracted pelvis. Cæsarian section was unsuccessfully performed, and her child died in a few days. A few normal cases were taken in by the nurse when there were no beds in the houses. In one case the child was born in the cab, so that the cabman landed three passengers, although he took in only two. We took the cases as they came, and did the best we could for them with the appliances at hand. In hospital it is a comparatively easy matter with plenty of assistance and all manner of appliances at hand, but it is a very different thing to deal with the difficult cases in a dirty room, with the patient in a high closed-in bed or on a pile of straw on the floor, and only a nurse to assist one. When I could get a student to assist by giving chloroform I did so, but in the majority of cases the nurse and I had to manage the best way we could. Only one case died at the time of the confinement, and that was one of concealed accidental hæmorrhage, detailed in my first report.

The fatal cases were—Puerperal fever, 4; one of which died in Belvidere. Concealed accidental hæmorrhage, 1. Placenta prævia, 1; she died as Dr. Marshall entered the house. Pneumonia, 1—prematurely delivered at the crisis, died two days later. Phthisis, 1—prematurely delivered at 6½ months. Alcoholic gastritis, 1—prematurely delivered at 7 months. Embolism, 1—died 25 days after confinement. There was thus six cases due to the confinement. One of these died in Belvidere, and another twelve days after we had ceased attending her. If they had not happened to send for me, I would probably never have known of her death. The placenta prævia case was only reached when giving her last gasp, so we were not responsible for her death. In the three other cases the confinement was not the immediate cause of death. I think the death-rate will compare favourably with that of ordinary, private, or hospital work, when we take into consideration the conditions under which the work was carried on.

Of placenta prævia we had 5 cases, counting the fatal one; accidental hæmorrhage, 9—1 fatal; post-partum hæmorrhage, 9, all successfully treated; eclampsia, 2 cases, both successfully treated. There were only 5 face cases—2 terminated naturally, 1 primiparous; 2 were delivered with forceps and 1 by turning. All the children lived.

In nearly all instrumental cases, both high and low, I used Milne Murray's axis traction forceps. In a few instances I had only a straight pair or Simpson's ordinary ones at hand, and made use of them. When the head was in the pelvis they did well enough, especially Simpson's, but in one or two cases where the head was at the brim, I found the delivery very much more difficult than with the axis traction. I mention this, as I know axis traction forceps are not much used in Glasgow, not nearly so much as straight ones, which, with all due deference to their advocates, should be relegated to the museums. The axis traction forceps, being all metal, is easily purified by plunging into boiling water before using, as I always do.

The antiseptic we have used throughout has been perchloride of mercury, and although I have, in many instances, douched out the uterus, I have never once had the least symptom of poisoning. I always ended the douche with pure boiled water. Unless there was hæmorrhage, or the hand had been introduced into the uterus, douching was not done at the confinement, and afterwards only if the temperature rose. If it rose above 102° I invariably gave an inter-uterine douche of 1 to 2000 perchloride, which rarely had to be repeated. These patients always rise on their knees to urinate, and usually sit up in bed by the second or third day, if they are not up altogether by that time, and I believe the free drainage of the uterus obtained in this way tends to prevent them taking puerperal fever. They must be seasoned to their insanitary surroundings, otherwise many of them would take septicæmia. One of the most difficult forceps cases I had last year was lying in a bed which stank so horribly that it nearly sickened me, and yet she had a normal puerperium.

I trust that these reports have been of interest to the Fellows of this Society, and to other medical men who have taken the trouble to read them. I hope the day may not be far distant when we shall have medical reports of all similar work done in Glasgow, so that reliable statistics may be compiled, and those of us who are not fortunate enough in gaining appointments may at least profit by the experience of our more fortunate brethren.

A writer in last week's *British Medical Journal* inveighs against "the modern practice on the part of surgeons of recording their successful, and saying nothing of their unsuccessful, cases." He says "it is a miserable and dishonest habit, and causes much of our recent surgical literature to be very untrustworthy." Reports on the lines I have indicated would, at least, prevent this happening in connection with our public institutions.

In conclusion, I wish to tender my best thanks to the nurses, students, and district accoucheurs who have been associated with me in the work, and, also, specially to Dr. George Marshall who so kindly acted for me during all my vacations, and at other times, when I was ill or unavoidably prevented from attending.

FOREIGN BODY IN AIR-PASSAGES; TRACHEOTOMY; PNEUMOTHORAX; RECOVERY.

By JAMES CARSLAW, M.A., M.B., C.M., PAISLEY.

A. B., aged 8, was brought to Dr. Fraser, Paisley, on the morning of 12th November, 1894, with the story that, on the previous day at dinner, he had "swallowed a cherry-plum stone the wrong way." He had laughed with some fruit in his mouth, and immediately took a fit of choking, so pronounced as to alarm the friends, and make him "black in the face." The same evening he had several fits of coughing, and spat up a little blood. When first seen the patient expressed himself as "feeling quite well." He was breathing very quietly, and physical examination of the chest gave no difference between the two sides, while laryngoscopic examination revealed nothing abnormal. Inversion and succussion of the body were tried with no result. On account of the absence of physical signs, and the complete freedom from discomfort of the patient, he was sent home to be carefully watched with a view to operative interference, should further symptoms supervene.

On the evening of 13th November, the patient's breathing began to be noisy, and he suffered from a good deal of irritating dry cough. Next morning he was visited and found to be still feeling quite well, and quite free from fever. But his breathing was very rough and laryngeal, and there had now developed some relative dulness on the right side of the

chest, both before and behind, over the middle lobe, with some weakening of the respiratory murmur, though but little râle. He had also a dry, brassy cough at times, but no interference with the voice, and examination by the laryngoscope again gave negative result. Operation without delay was therefore advised, and that afternoon he was transferred to a private nursing home in Glasgow, where Dr. Hector Cameron performed the operation of tracheotomy low down. When the trachea was opened, however, no foreign body was dislodged or even detected, notwithstanding the pretty free use of probe and wire noose in the trachea. Inversion and succussion were also tried but in vain, and a good deal of surgical emphysema of neck and face followed. A tracheotomy tube was inserted, and the patient nursed in the ordinary way, not being much upset by the operation.

For the next few days nothing of special note occurred. The surgical emphysema, mentioned above, rapidly disappeared, though there was a good deal of cough, with expectoration of frothy mucus through the wound, and patient's temperature ranged irregularly from 98.6° to 101° . However, on the evening of 20th November, his temperature rose to 102° , and it now began to take a markedly hectic form, averaging 99.2° in the morning, and 103° in the evening during the next week—the maximum being 103.8° . His cough became more distressing, and there was found to be a fresh occurrence of surgical emphysema on the left side, felt as far as the axilla. At the same time the percussion note on the left side of the chest was found to be tympanitic over the upper part, and dull towards the base, there being more or less loss of respiratory murmur without râle, indicating the occurrence of pneumothorax on the left side, with collapse of that lung. The hectic temperatures continued very marked for some time, and the pneumothorax gradually increased, the heart being displaced somewhat downwards, and almost as far to the right as the right nipple, while practically no respiratory murmur could be got on the left side. Indeed, the question of aspiration of the left side was seriously entertained about 7th December, when, however, the symptoms seemed to begin to decline, a gradual fall in the evening temperatures being now noticed, and the heart being found to be receding towards its normal position.

The patient had by this time been removed home, and though very much reduced physically, he took a great deal of nourishment and was wonderfully well, considering the condition of his chest and the prolonged hectic fever. He

suffered a good deal from cough, and a considerable quantity of mucus was expectorated through the tube, but without fœtor. On several occasions the tube was removed for twelve and even twenty-four hours at a time, and on one of these occasions Dr. Fraser gently probed the trachea, and felt sure that he had touched the foreign body, though careful examination, under chloroform, next day failed to reveal it. On the afternoon of 15th December, the tube had been again temporarily removed with a view to lessening the irritation of the trachea. However, early on the morning of the 16th, during a fit of coughing, the patient felt something in his trachea, and immediately coughed up through the glottis the long looked for stone, which had thus been five weeks *in situ*. All that day the temperature remained absolutely normal, and physical examination of the chest gave the following signs of pneumothorax:—Movement of left side of chest impaired, and left circumference 1 inch greater than right; tympanitic percussion all over the left front, and relatively dull at the left base; respiratory murmur good on the right side, but on left front none, except at extreme apex, where very feeble; and behind, weak respiratory murmur; along the left side of the dorsal spine, slightly tubular, and with a little fine crepitation; heart displaced to the right, there being epigastric pulsation and cardiac dulness exactly in the middle of chest.

Thereafter the patient rapidly improved. The temperature kept strictly normal, and he had now little cough. He slept well, ate ravenously, and quickly put on flesh, while the condition of the chest gradually improved, the following changes being noted on 30th December:—Movement of left side improving; less tympanicity of percussion, and respiratory murmur on left side now heard faintly at the lower part, and much better above, still accompanied by a little fine crepitation; heart has receded considerably, the apex beat being now felt in its normal position. Tracheotomy wound is nearly healed.

Since above note, the patient's improvement has been steadily maintained, and he now (26th January, 1895,) feels perfectly well. For 2½ weeks he has been allowed out of bed, and is getting about the house. At the present time examination of the chest gives the following result:—The left side of the chest is distinctly flattened, the chest wall having slightly collapsed, the left circumference being now half an inch less than the right; movement is still slightly impaired on the left side; percussion on the left side is not tympanitic but normal at apex, and relatively slightly dull elsewhere;

respiratory murmur is heard well all over the left side, but is relatively slightly weak, and there is a little fine crepitation at the left base behind; the heart is absolutely normal.

The unique feature of this case is the occurrence of pneumothorax, and that on the side opposite to that on which the foreign body had been diagnosed to be. The pneumothorax began not later than about ten days after the foreign body entered the air-passages, which would seem too short a time for it to have ulcerated through the wall of a main bronchus. Moreover, if the foreign body had ulcerated through the bronchus, it would have produced lung mischief rather than pleural, and the foreign body, instead of being coughed up after so long an interval as five weeks, would rather have proceeded in the direction of the ulceration. The fact that the pneumothorax and many of the symptoms began to improve a considerable time before the stone was actually coughed up negatives the idea that they depended directly on its presence. It would also seem too short a time for any suppurative processes that might have been going on to have led to necrosis of the pleura, and so to pneumothorax.

Two possible theories as to the cause of this pneumothorax may still be mentioned:—(1) It may have been consequent on simple rupture of air cells of the lung through the pleura by violent respiratory efforts. (2) It may have been associated with mediastinal emphysema, and directly connected with the tracheotomy wound.

One of the complications of whooping cough, due to the violent paroxysms of the cough, is the occurrence of pulmonary vesicular emphysema, and occasionally rupture of the air cells gives rise to interstitial emphysema, which may lead to more or less general subcutaneous emphysema by extension along the trachea. A much rarer occurrence in such cases is rupture of the air cells into the pleural cavity, so that pneumothorax results. Similar very rare cases of pneumothorax in healthy lungs have been reported by Fräntzel, Flint, and others, consequent on emphysema and rupture of air cells by some violent straining effort with the glottis closed. Again, in obstetrical practice, cases of emphysema—interstitial and, it may be, extending up into the neck—have been occasionally met with, especially after the abuse of ergot; but no case of pneumothorax has been found reported. It will thus be evident that, in these cases of violent straining effort, an occasional result is interstitial emphysema of the lung, becoming more or less general by extension along the

trachea; but only very rarely, indeed, have air cells ruptured into the pleural cavity. In the present case, however, there was no spasm of the glottis akin to that in whooping-cough, nor excessive straining. Moreover, the occurrence of fresh surgical emphysema of the side and axilla, along with the pneumothorax, would, on this theory, require a second and simultaneous cause.

The second theory was that the air was derived, not from the lung, but from outside the chest. Just as perforation of the œsophagus may produce pneumothorax, so pneumothorax would seem to be an occasional complication of the operation of tracheotomy. After this operation air in the cellular tissue of the mediastinum is not infrequently met with, and this is sometimes followed by pneumothorax, the air extending from the wound under the deep cervical fascia, so as to fill the mediastinal connective tissue, and thence burst into the pleural cavity. Wilks and Moxon drew attention to this possibility in these terms:—"We believe we have seen two cases of pneumothorax arise from tracheotomy, and we mention the circumstance because we are not aware that it has ever been alluded to. In one case where, after tracheotomy, death occurred without sufficient reason, both lungs were found contracted in the chest, and the cellular tissue in the posterior mediastinum was filled with air, producing large bubbles, which we think had burst through the pleura into the chest. In another case, where most extensive superficial emphysema followed the operation, the breathing became laborious before death, and the lungs were found contracted in the same manner; the emphysema had penetrated the mediastinum."¹ However, it was Dr. Champneys who first insisted on the comparative frequency of this occurrence. In the course of an interesting series of experiments on "Artificial Respiration in Still-born Children,"² tracheotomy having been first performed, he noticed that mediastinal emphysema had occurred in seven out of twenty-one experiments, and pneumothorax as well in five of these seven. He says: "Pneumothorax was often associated with mediastinal emphysema, but never occurred without emphysema; on the contrary, the emphysema occurred without pneumothorax. Therefore the pneumothorax was probably a later sequel of the emphysema." Though in the hospital records cases of this kind have been rarely reported, this would seem to be because little attention has

¹ Wilks and Moxon, *Lectures on Pathological Anatomy*, p. 308, second edition.

² *Med.-Chir. Transactions*, 1882, p. 75, *et seq.*

been paid to the possibility, and any small amount of air is liable to escape observation. For Dr. Angel Money, out of 28 *post-mortem* examinations after tracheotomy—made very carefully under water—found no fewer than 16 cases of mediastinal emphysema, in two of which pneumothorax was also present.¹ The amount of emphysema in these cases was noticed to be greatest when pneumothorax existed also. So recently as December last, in the *British Medical Journal*, p. 1269, a fatal case with pneumothorax after tracheotomy is reported, and commented on at p. 1405.

It would seem, then, not unlikely that the pneumothorax depended on the operation, and that the foreign body was partially obstructing the right bronchus all along, the left lung being apparently uninjured, except in so far as it was more or less collapsed on account of the pneumothorax. The operation performed was the low one, so that mediastinal emphysema was more likely to occur, and increased coughing coincided with the onset of the emphysema and pneumothorax. It no doubt seems strange that air should get into the connective tissue so many days after the operation, when the wound would be granulating; but the chief difficulty is not why emphysema occurred, but why the emphysema ruptured the pleural sac. It seems undoubted, however—especially from Champneys' experiments and Money's *post-mortems*—that such a thing occasionally does occur, though I understand this is not in harmony with the extensive experience of Dr. Hector Cameron.

This case is also interesting, as it is one of those of foreign body in the air-passages where ultimate recovery has taken place, though the full opportunity for expulsion afforded by tracheotomy, inversion, &c., has been without success at the time of operation. Moreover, the foreign body was coughed up through the glottis without the slightest spasm, the breathing being carried on through the tracheal opening. There is a natural feeling of disappointment when the immediate result of this operation is *nil*; but it should be remembered that in a large proportion of cases that do well ultimately, expulsion of the foreign body does not take place till some time after operation. Dr. Cameron says: "Even in cases where the surgeon fails at once to seize and extract the foreign body, his having opened the air-passages is of service, by preventing all risk of such a fatal issue as I have just narrated (*i. e.*, by spasm of the glottis); and, further, as I shall now proceed to explain, the chance of the body being coughed

¹ *Lancet*, August, 1883, p. 1044.

up and expelled by the natural passages is rendered by this course much more probable, not to mention the chance of its being any day extracted by the wound when circumstances appear to justify renewed attempts by the surgeon."¹ The statistics in Holmes' *Surgery*, giving "The results of tracheotomy on account of foreign bodies in the air-passages,"² bear this out. For of 157 recoveries, there were 48 cases (nearly 31 per cent) in which the foreign body was expelled subsequent to operation, 30 of these being by spontaneous expulsion. It is interesting to note that in 20 of these 30 cases the foreign body was expelled through the glottis, and in only 10 through the tracheal opening.

I am indebted to Dr. Fraser and Dr. Cameron for permission to publish the present case.

A CASE OF DIPHTHERIA TREATED WITH ANTITOXIN.

By ALEXANDER J. F. SKOTTOWE, M.D.,

Physician to the Hospital for Infectious Diseases, and Medical Officer of Health, Helensburgh.

S. S., a little girl, aged 5 years, was admitted to Hospital on 16th February, suffering from diphtheria. Microscopic examination verified the diagnosis.

The child had been ill for about ten days, but only came under treatment at home on the 11th. At this time the symptoms indicated laryngeal implication. There were harsh croupy cough, restlessness, elevation of temperature (ranging up to 102°), and considerable acceleration of pulse, which varied in rate up to 150 per minute. The cough was very troublesome, though it varied in severity, occasionally occurring in painful paroxysms. Examination of the throat revealed merely a congested mucous membrane and some slight tonsillar enlargement. There was no sign of "diphtheritic membrane" in the throat till the 13th, when patches appeared on the posterior pillars of the fauces.

On the following day there was discovered to have been a steady increase in the amount of this membrane, both tonsils being covered with it. The urine showed a trace of albumen.

¹ *International Clinics* (second series), vol. iii, p. 113.

² Holmes and Hulke, *System of Surgery* (third edition), vol. i, p. 770.

On the 15th the child was very ill, temperature 102°, pulse 150 per minute, and there was incessant hard cough, with loud crowing inspiration; the head was thrown back, the nostrils were dilated, and the forehead covered with sweat. There was evidently increasing difficulty of breathing, and though the respiratory murmur all over the lungs was fairly good, numerous sonorous râles were heard on auscultation.

A very bad night was passed, and on the morning of the 16th there was a marked change for the worse; with an increasing laryngeal obstruction all the symptoms were aggravated, and the mother consented to removal to Hospital, and gave me permission to do whatever I thought best.

All through the illness at home there was, of course, strict isolation, and the usual precautions were taken which such an affection demands. The child would have been removed earlier, but, *ceteris paribus*, the mother's wish to nurse her little one was yielded to; not only was the isolation complete, but it was deemed inadvisable (under that circumstance), while the symptoms were not alarming, to expose the little patient to the low temperature out of doors, which at that time was many degrees below freezing point. On the 16th there was a thaw, the day was bright and mild, and with a temperature of nearly 40° F.

When admitted to Hospital, the child's condition was as follows:—There was marked difficulty of breathing, the lower ribs and the inferior end of the sternum being forcibly drawn in with each attempt at inspiration; the lips were blue, the face leaden and cold and covered with a clammy sweat; the pulse was soft and feeble, and so rapid as to be difficult of counting.

At 2 P.M., antitoxin (10 c.c.) was injected under the skin on the inner surface of right thigh, and an hour and a half after that tracheotomy was performed. During the operation there was no hæmorrhage, and, on opening the trachea, a quantity of tough, pulpy material was coughed up; the breathing then becoming free, the tracheal tube was fixed in position in the usual way. According to my custom the little patient was put into a "tent" bed, into which was discharged a constant supply of steam impregnated with eucalyptus. Fluid nourishment frequently and in small quantities, ammon. carb. in full doses, and 1 dr. whisky well diluted every four hours, completed the treatment.

At 9 P.M. the patient was wonderfully well, temperature 100°; pulse, much improved in character, was 120 per minute; the breathing was full and easy; the tube was giving little or

no trouble, and there had been coughed up a considerable quantity of tough tenacious material; the child was lying perfectly comfortable and had taken a fair quantity of food, swallowing without difficulty.

17th February.—Child slept well, and was very quiet during the night, and in the morning, at my visit, was remarkably bright. The tube was free, and the breathing full and easy. Membrane freely coughed up, some of the pieces being fully an inch and a half long. Temperature, 98·4°; pulse, 100, strong and regular. Cough much easier, and on each attack the membrane is rapidly discharged. The chest was clear on percussion, and only a few moist râles were heard on auscultation. Urine free from albumen.

18th February.—Still improving; slept well last night, except at times when quantity of membrane was coughed up. Temperature, 98·2° (last evening, 98·4°); pulse, 92. Membrane still freely coughed up. On examining the throat there was noted marked diminution in the amount of membrane visible, but the parts looked red and tender.

20th February.—The general improvement still maintained. Yesterday the membrane, though still coming away, was discharged much less frequently, and in much smaller pieces. The tube was removed for an hour morning and evening.

22nd February.—The tube was out all yesterday, and as no membrane has passed since the 20th, it was not replaced last night. On closing the wound in neck with the finger the patient was able to breath through the mouth, taking full and deep inspirations, and the voice, though somewhat feeble, was fairly distinct. There was a tendency to cough when swallowing, especially if performed quickly. At this time the stimulant was reduced, and port wine substituted. The steam was now stopped, and the child placed in ordinary cot.

25th February.—Child doing very well, wound in throat almost healed, and there was no discharge. The voice almost normal, and the child read very clearly a short passage from one of her picture books.

On the 28th the little patient was first allowed up; the wound was healed over and dry. The little difficulty in swallowing having passed off, food, more solid in character, was allowed, and the syr. phosph. co. prescribed.

Convalescence was rapid and uninterrupted by any complications, and the child was dismissed well on the 9th of March.

Remarks.—On the morning of the day the child was removed to Hospital the temperature was 102°; in the evening after

the antitoxin injection, and after tracheotomy had been performed, it was only 100°. The following morning temperature was 98·4°, and except on two evenings after that, when the thermometer showed 99°, the temperature remained normal throughout. As this was the first time I had used antitoxin it would be premature to express an opinion regarding it, but this I can say, that in all my experience of tracheotomy for diphtheria, I have never seen a case in which the tracheal tube gave so little trouble, nor one in which the membrane was coughed up and expelled so easily.

CURRENT TOPICS.

CONVERSAZIONE AT ST. MUNGO'S COLLEGE.—A very largely attended conversazione took place within the medical buildings of St. Mungo's College, on the evening of Thursday, the 22nd March last. All the rooms and laboratories of the School were thrown open to the inspection of the guests, and refreshments were served in the conservatory of the Infirmary, which for the time was connected to the school by a canvas awning, lighted with numerous lamps. In the physiological laboratory a large number of microscopic objects were demonstrated, whilst, in the adjoining dispensary hall, several lantern demonstrations were given. The phonograph and the kinetoscope, which were demonstrated in full working order, delighted and amused large numbers of the ladies and gentlemen present. The dissecting room was cleansed and decorated beyond all recognition or suspicion, and, after having served admirably as a reception hall, its ample floor was found in splendid order for the dancing, which took place between 10 o'clock and midnight. The guests, of whom there were between 300 and 400, including many of the prominent citizens and professional men of Glasgow, were received, from 7·30 to 8 P.M., by the Dean of the Medical Faculty and the Teachers. Everyone present was delighted with the evening's entertainment.

APPOINTMENT OF MEDICAL OFFICER TO GLASGOW PRISON.—The vacancy, caused by the appointment of Dr. F. R. Sutherland as a Deputy Commissioner in Lunacy, has been filled by the appointment of Mr. James Devon, L.R.C.P.S. Ed. Mr. Devon was a distinguished student of St. Mungo's College,

and filled successively the offices of demonstrator of pathology and house surgeon in the Royal Infirmary, and house surgeon, City Parochial Hospital.

ANDERSON'S COLLEGE MEDICAL SCHOOL.—Dr. R. M. Buchanan has been appointed Professor of Medical Jurisprudence in room of Dr. T. K. Dalziel.



GARTLOCH ASYLUM.—Dr. Landel Rose Oswald, late of Gartnavel, has been appointed medical superintendent.

NEW PREPARATIONS, DRUGS, &c.—*Messrs. Domeier & Co.*, of 13 St. Mary-at-Hill, London, E.C., send us specimens of *lactophenine* and *ferratin*. The former, of the antipyretic class of remedies, is a phenetidine in which the acetic acid, adhering to the ammonia residue, has been replaced by lactic acid; and it has been used in the treatment of influenza, enteric fever, and other febrile affections. It is favourably spoken of by Dr. R. v. Jaksch, of Prague, and other competent physicians. The latter is called the ferruginous element of food, and is an iron derivative of acid albumen. It is said to be readily absorbed and not to interfere with the digestive functions.

Messrs. Reynolds & Branson, of Leeds, send us notice of an *enema rack*, of which the accompanying illustration will give our readers a good idea. The enema rack suspends enemas in the only position in which they should be stored, saves any mess from drip, and provides that proper place for them which is consistent with forethought and good order.

REVIEWS.

The Aseptic Treatment of Wounds. By DR. C. SCHIMMELBUSCH; with a Preface by PROFESSOR BERGMANN. Translated from the German by ALFRED THEODORE RAKE, M.B., F.R.C.S. London: H. K. Lewis. 1894.

THE work deals with "aseptic," as opposed to antiseptic, surgery. Its 230 pages contain an excellent account of the main details of "aseptic" practice, and will well repay careful perusal by those not already familiar with these details.

As our readers are aware, the "aseptic" surgeon employs heat, in the form of steam or of hot water, to sterilise his instruments and dressings. That heat is the most efficient means we have of doing this few surgeons are now inclined to deny; and we have some reason to believe that the presence and use of a "steriliser" in a surgical clinique inculcate a spirit of scrupulous care and cleanliness, which tends to pervade the entire working of that clinique.

It seems to us, however, that Dr. Schimmelbusch, like many enthusiasts, seriously damages his case by overstating it. There are certain things concerned, in every operation, which cannot be sterilised by heat—viz., the patient's skin, the hands of the surgeon and nurses, catgut ligatures, and sponges, if these are used. Further, the surgeon has to deal with many wounds, which are septic when he sees them. For all these things the use of antiseptics is necessary. This fact Dr. Schimmelbusch, indeed, recognises in the latter part of his work. His assertions in the earlier part of the volume, however, of the absolute inefficiency of all antiseptics are so sweeping and positive, that his subsequent instructions as to their use for the above-mentioned purposes come as a surprise, and leave the reader with a sense of inconsistency in the writer's views, and lameness in his logic.

Notwithstanding this defect, the work contains much with which our experience leads us to entirely agree.

What the ultimate decision of the profession on the question may be, time must show. For our part we believe that, at present, the best operative results are got by combining the two systems—antiseptic and aseptic (so-called)—the defects of each being, so far, made good by the qualities of the other.

Urinary Surgery. By E. HURRY FENWICK, F.R.C.S. Bristol: John Wright & Co. 1894.

THIS little work forms one of the series of "Epitomes of Modern Surgical Progress," published by Messrs. John Wright & Co. The author, in his preface, terms it a "compilation of the more important contributions" to the "recent literature of the surgery of the urinary organs."

The contents are arranged in seven sections, dealing with the Kidney, the Ureters, the Bladder, Electric Cystoscopy, the Prostate, the Seminal Vesicles, and the Urethra.

In each section are tersely quoted from the writings of their various authors many of the most important additions

of recent years to the pathology and treatment of the different affections of the urinary organs. Interspersed with these quotations are comments by the author, and statements of his own views and work on many of the points dealt with.

Mr. Fenwick's work will prove of much value to the busy practitioner, who has not the time to search in the various periodicals for the most recent information in a branch of surgery where the advances of the last decade have been so rapid and great; and the help he may derive in his practice from the volume is not materially diminished by the fact that he may not be able to use the cystoscope. It is perfectly true that, as Mr. Fenwick puts it, the introduction of the electric cystoscope in 1887 opened a new era in urinary surgery, and has been the immediate source of much of the subsequent advance in that branch. Yet many facts, first demonstrated by the cystoscope, have now a definite position in surgery, independent of the apparatus employed in their discovery.

It will, of course, be understood that the author gives the latest additions only to urinary surgery—he in no way attempts a complete account of it.

An Introduction to Midwifery: a Handbook for Medical Students and Midwives. By ARCHIBALD DONALD, M.A., M.D., C.M. (Edin.), M.R.C.P. (Lond.), Surgeon to St. Mary's Hospital for Women and Children, Manchester, &c. With numerous Illustrations. London: Charles Griffin & Co., Limited. 1894.

THIS excellent little volume is intended by the author to serve as a handbook "for medical students beginning the practice of midwifery, and for midwives," and we cordially recommend it to both of these classes as thoroughly trustworthy.

Dr. Donald lays it down as an axiom for his readers to follow that "the moment a case deviates from the normal in any important detail, the services of a doctor must be obtained;" and he keeps his limitation well in mind throughout. Too often writers of such works as this are led into details which are beyond the province of those for whom the book is intended; but Dr. Donald has carefully avoided this, although, perhaps, in a few instances—as, for example, in the chapter descriptive of the various forms of deformed pelvis—the information conveyed is a little beyond what is necessary for midwives.

The book is simply written, information is conveyed in a

way that cannot fail to be understood, the treatment of ordinary cases is clearly laid down, and in all other circumstances the instruction given is to "send at once for a doctor."

The chapters on "Antiseptics in Midwifery Practice" and on "Puerperal Fever" are especially to be commended. Would that all midwives, students, and general practitioners had clearly in their minds the knowledge here imparted, and were as careful in carrying out the details of antiseptic midwifery as the author would have them! Then we would be within measurable distance of having puerperal fever a disease of the past.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1894-95.

MEETING V.—8TH FEBRUARY, 1895.

Vice-President, DR. MIDDLETON, in the Chair.

I.—PATIENT WITH CHRONIC ABSCESS OF THE LUNG OF UNUSUAL ORIGIN.

BY DR. WALLACE ANDERSON.

In showing this patient, Dr. Wallace Anderson said it would be noticed that she was well nourished, and of good colour. She was strong, and able to be going about the ward all day; and though feeling somewhat weaker than she did a few years ago, she was certain that of late she had grown stouter. Notwithstanding this, there was a large cavity in the upper part of the left lung, extending from close to the clavicle down to the third rib. This cavity, from time to time, became gradually filled up, when a severe fit of coughing would ensue, followed by the expectoration of a considerable quantity of foetid purulent matter. When the cavity was empty it was large enough to give amphoric breathing of perfect quality, and even when partially filled the amphoric character was still unmistakably preserved, while there were invariably in addition large bubbling râles. The expectoration had not been measured, but he had seen a sample kept in a

vertical glass vessel for twenty-four hours, and it had then separated into the three layers characteristic of the expectoration from a gangrenous area—viz., a dense layer at the foot, then a clear layer, and, lastly, a superficial layer, partly frothy and partly purulent. It had been examined for tubercular bacilli, so far with negative results.

To account for this cavity was the difficulty. He thought it was not likely to be tubercular. No bacilli had as yet been found, and the patient's strength had lost little, although the affection had now gone on for six years. There had, besides, been no persistent pyrexia, and no sweatings. Her appetite was good and she was gaining weight. Menstruation was quite regular. There was, indeed, a history of tubercular disease in the family, but he was inclined to regard certain facts, to be presently mentioned, in the patient's personal history as indicative rather of a "scrofulous" than of a definitely tubercular tendency. It was, further, to be noted that there was nothing to suggest pneumonia or even a circumscribed empyema which might have opened into the lung by a bronchial fistula. The cavity was not likely to be bronchiectatic, for a saccular bronchiectasis was usually at the base and not in the apex, as in this case. There was nothing to suggest that the origin had been by inhalation from throat, nose, or ear disease.

Dr. Wallace Anderson believed that the true explanation of the condition was to be found in the history of a supra-clavicular abscess, a blow upon which had been immediately followed by the expectoration of a considerable quantity of pus, as recorded in the appended extract summary of the case. This abscess appeared to have burst through both pleural layers, which might be supposed to have been previously affected by their proximity to the abscess. When the pus had thus found its way into the lung, the girl not being of robust constitution, there had probably been set up a process of necrosis.

The following is a summary or outline of the facts of the case :—

S. M'G., æt 20, warehouse girl, admitted to Ward 8, Royal Infirmary, on 3rd January, 1895, complaining of cough and spit of eighteen months' duration, and of frequently vomiting large quantities of foetid matter during the last six weeks or more.

Family History.—The patient's father, and a brother, aged 22, are alive and well; another brother, aged 15, is said not to be strong. Her mother died at the age of 35, of con-

sumption. Patient had three sisters and one brother who died in infancy.

Personal History.—There are vague references to several attacks of "inflammation of the lungs" when a young girl. More particularly about six years ago, a painful swelling appeared above left clavicle, which was poulticed by the doctor's orders, burst in a week or two afterwards, and then healed, as she believes, completely. But it gathered again in the same place, and soon attained its former size—namely, about that of a hen's egg. About this time it was struck accidentally, but severely, by another girl; she fainted, and on regaining consciousness was told by her mother that she had brought up a large quantity of matter; the swelling, too, had disappeared. The patient's own recollection of subsequent events is not very clear, but there is a history of cough and spit from time to time, ultimately developing into a regular cough and a steadily increasing amount of purulent spit during the last eighteen months. With all that, the processes of development and nutrition generally have been well maintained; she is not only growing, but also becoming relatively stouter. She further explains that by "vomiting" she means that a large quantity of matter is suddenly forced up by the act of coughing. This occurs usually three times in the day. Stooping down invariably brings it on, and, she adds spontaneously, that if she lies on her right side, "it seems to empty itself in the chest;" an abundant expectoration immediately follows. But it must be further noted that the factor is of quite recent occurrence; it was first remarked by her fellow-workers, and certainly not more than two months before her admission to hospital.

Dr. Middleton drew attention to a cicatrix in the neck at the site of the abscess.

Dr. Wallace Anderson explained that this was the mark of the first rupture of the abscess.

Dr. Balfour Marshall asked if *Dr. Wallace Anderson* supposed the pleuræ to have been adherent, because otherwise the pus must have escaped into the pleural cavity.

Dr. Wallace Anderson replied in the affirmative.

Dr. Hawthorne thought that the scar on the neck was just such as would be left after the healing of a strumous or tubercular abscess.

Dr. Walker Downie asked if there had been any history of a foreign body, and was answered in the negative.

Mr. Clark said that when a glandular abscess formed in the

posterior triangle, as had been the case here, it was often considerable. If it burst into the lung, adhesion would, first of all, have taken place. The fascia might offer a difficulty to such an abscess reaching the surface.

Dr. Hawthorne mentioned the possibility of spread of disease in the opposite direction—from the lung to the subcutaneous tissue, with formation there of abscess.

Dr. Middleton had no doubt as to the presence of the cavity. The difficulty was to explain its origin. It seemed to him possible that, if *Dr. Wallace Anderson's* suggestion (that the supraclavicular abscess had ruptured inwards) was right, then the rupture might have been into the bronchus or trachea near its bifurcation, with subsequent involvement of the pulmonary tissue. There might, on the other hand, have been originally a tubercular lesion in the apex of the lung, with adherent pleuræ and rupture into the subcutaneous tissue, in the manner suggested by *Dr. Hawthorne*. Rupture of an abscess of this kind into the lung itself was unique in his experience. The most likely explanation he thought to be that of foreign body, because, in many cases, it was difficult to get a history of the introduction of the foreign body, although there was good reason to suspect that the disease had originated in such a way. He had in his mind the case of a young lady, whom he had not seen for two years, and whom he accordingly judged to have been quite well during that time. When he had examined her first he had found a lesion at the base of one lung, and had diagnosed either cavity or pneumonia. On mentioning his suspicions to her friends, he had been told that a former medical attendant had spoken to them of some dulness being present in the same situation for some years. The patient had seen several physicians in Glasgow and in London, and the general opinion had been that there was a tubercular cavity. After considerable correspondence on the subject, *Dr. Middleton* had come to think that although there was no definite history of a foreign body, one must have been introduced and given rise to abscess, which had now finally dried up after many times apparently healing and breaking out again.

The foetus in the present case was one of the circumstances which led him to suppose a foreign body probable.

Dr. Wallace Anderson explained that the foetus had been observed only recently. He would like to have the opinion of members on the question as to whether the present case was a suitable one for operation.

Dr. Middleton thought that operative interference was

inadvisable meantime, as the patient seemed to be keeping so well.

Mr. Clark, in this connection, said that he had had a case of abscess of the lung, which had burst into the subcutaneous tissue. An abscess had formed in the neck, into which air was being pumped during respiration. This abscess had been opened and washed out. The case did not do well, but it was to be mentioned that the patient had tubercular disease, and also that the washing out had to be stopped because of the fluid causing irritation through there being free communication with a bronchus. He had had other cases which did well, but in them there had not been free communication with a bronchus; such communication seemed a distinct hindrance to success. In the unsuccessful case he had just mentioned operation had been forced upon them. His feeling as regards *Dr. Wallace Anderson's* patient was that they should not interfere in the meantime, as she was keeping so well.

Dr. Wallace Anderson added that the treatment adopted had been by inhalations, and by internal administration of petroleum emulsion.

II.—PATIENT WITH CONGENITAL MYXŒDEMA SHOWN AFTER TREATMENT BY THYROID EXTRACT.

BY DR. WALLACE ANDERSON.

This patient, a child of 18 months, had been admitted originally to *Dr. Fleming's* ward, the first indication of disease noticed by the mother being pain in the right hip, dating back to six months prior to October last. Besides some local swelling in the hip, it had been found that the body was, in general, very flabby and fat, and that the patient's aspect was distinctly like that of a cretin. The hair was dry, scurfy, and thin. The child lay on his back and cried almost constantly, and could not be amused or attracted by anything. The urine, on two examinations, was found to be free from albumen and sugar. After transference to the medical wards, treatment by thyroid extract was adopted, and even in a few days, *Dr. Wallace Anderson* said, they believed that they could see an improvement. Measurements of the thighs, and of the legs below the knees, showed marked reduction under treatment, and there was similar reduction in the notes of the body-weight. The alteration in general appearance was such that the nurse of the surgical ward had now difficulty in recognising the patient as the same child.

The form of thyroid extract used had been Burroughs &

Wellcome's tabloids, 1 grain of which had been given thrice daily from 13th November till the 10th of January, when it had been stopped, as the patient did not seem so well. His temperature had gone up; he had lost his appetite somewhat; and there was some swelling about the face as if he were taking an ordinary cold. After stopping the remedy he had become peevish, listless, and drowsy, but he had rapidly improved again after resuming the thyroid on 1st February, and he was now almost back to the satisfactory condition obtained during its former administration. No glycosuria had been detected.

The patient was a first child; his parents were dull, and both very young.

Dr. Middleton asked if the child was getting his teeth.

Dr. Wallace Anderson replied that he had got some since admission.

Mr. Clark asked why the case was described as "congenital."

Dr. Walker Downie replied that there was congenital absence of the thyroid gland. The trachea might be felt to be very superficial.¹

Dr. Robert Fullerton asked what *Dr. Wallace Anderson's* opinion was as to the ultimate result.

Dr. Wallace Anderson replied that, as the child became worse when the remedy was stopped, he thought that the thyroid treatment would have to be continued indefinitely.

Mr. Clark suggested that the case was a suitable one for grafting the thyroid. With a child so young, suffering from myxœdema, the prospect of having to get the thyroid administered all its life was a serious matter; and the grafting of a thyroid gland from some animal seemed a reasonable way out of the difficulty.

Dr. Middleton knew the case well, as the patient had, through some mistake, been sent to his ward, and remained there for some days. He had at that time recognised the case as one of myxœdema, and he now recognised marked improvement as regards the limbs, the face, and the cry. The latter had at first had the peculiar hoarse ring associated with myxœdema in adults; it was now much more natural. It had been a question in his mind whether the case should be called one of myxœdema or one of sporadic cretinism; and there had been many points suggestive of the latter. Person-

¹ [The mother has since informed *Dr. Anderson* that, though the pain in the hip was to her the first indication of disease, the child was big and flabby from birth.—J. W. A.]

ally, he did not think that he had heard of myxœdema at such an early age, and he did not remember finding any record of it when looking up the literature of the subject recently. Dr. Wallace Anderson had, however, mentioned that similarly early cases had been reported. Dr. Middleton had begun giving thyroid extract to the present patient, as he thought that, whether the case was regarded as myxœdema or cretinism, the treatment would be the same. The extract had been continued, as mentioned by Dr. Wallace Anderson. As to the ultimate outlook, unless Mr. Clark grafted a thyroid, he thought the administration of the thyroid would have to be continued. That had been his experience in other cases; when the administration was stopped, the patient's condition deteriorated.

III.—PATIENT WITH AN UNUSUAL CONDITION OF THE FAUCES.

BY DR. ROBERT FULLERTON.

Dr. Fullerton showed a patient with an unusual condition of the fauces. The external portion of each of the anterior pillars of the fauces was occupied by an elongated oval opening, extending from the level of the base of the uvula above, down almost to the lingual attachment. The opening on the right was somewhat larger than that on the left side. The right posterior pillar was represented by a detached band of mucous membrane in the position of the free edge of the normal structure. The left posterior pillar, together with both tonsils, were wanting. The edges of the openings, as well as that of the detached band, were soft, smooth, and even without cicatricial tissue. Over the greater part of the pharynx the mucous membrane had been destroyed. This process extended from a short distance above the œsophageal opening up into the naso-pharynx, and over the upper surface of the soft palate, leaving in places patches of atrophied membrane. It appeared to have been a destruction of the mucous membrane proper, leaving the submucous fibrous layer exposed, without true cicatricial formation. No history of this could be obtained. There was no difficulty in swallowing nor alteration in speech, and before examination the patient was unconscious of anything unusual in her throat.

The patient was a healthy woman of 29, and had been married for ten years. She had three healthy children alive: one died from whooping-cough. She had a miscarriage five years ago; but the children born before and after were healthy. She does not know of having had any serious illness, except

scarlet fever when a child, and what she calls brain fever when five years of age. Her father is alive, aged 85.

Patient came to the Royal Infirmary Dispensary eleven months ago, suffering from a catarrhal condition of her throat and chest, when she saw Dr. Monro, who discovered the condition of the throat, and subsequently handed her over to Dr. Fullerton. Dr. Fullerton looked upon it as congenital, and read notes of somewhat similar cases which had been reported by Walters, Claiborne, Schmiegelow, O. Chiavi, and Schapinger.

Dr. Wallace Anderson asked if there had been any record of other congenital defects in the patient's family history.

Dr. Fullerton said not so far as he knew.

Dr. Walker Downie had been much interested in the case, but, for many reasons, he was inclined to differ from Dr. Fullerton as to its diagnosis. After examining the patient's throat, he had come to the conclusion, without much hesitation, that the case was one of syphilis. She said that she had had a very sore throat about twelve months ago, and he argued from this that inflammatory action had been going on then. Then she had had a miscarriage five years ago; that, of course, might have been altogether apart from syphilis. On the posterior wall of the pharynx there was a loss of tissue, which, to his (Dr. Downie's) mind, had probably been from gummatous formation. This loss of tissue in the fauces, he thought, pointed to a similar process having taken place there. As showing that there had been some inflammatory process present, he would direct attention to white cicatricial tissue which might be seen on the lateral wall to the left. Even though the other parts were, as Dr. Fullerton had described them, soft and flexible, that was no reason why the condition might not be due to syphilis. The syphilitic tissue was lost and the tissue around was left soft. When adhesion took place there was, of course, greater malformation. It had been mentioned that there was no difficulty in swallowing and no alteration in voice. Those symptoms were absent, because the palate as a whole had not been affected. From their absence one could draw no conclusion as to the cause of the changes found, and he (Dr. Downie) would regard those changes as being the result of some syphilitic affection—tertiary or inherited.

Dr. Fullerton said that he had seen the patient in March, 1894—i.e., a month after the sore throat referred to. She had then a slight catarrhal irritation of the throat, but it was

so slight that it had been specially the chest condition that had brought her to hospital. At that time there had certainly been nothing to suggest any recent ulcerative process in the throat. He did not think that whatever the process had been that it had occurred within recent years, and his impression was that the condition of the anterior pillars described was congenital.

Dr. Downie asked if the cicatricial tissue in the pharynx could possibly be congenital.

Dr. Fullerton replied in the negative.

Dr. Downie added that tertiary sores rarely caused much pain, even when there was deep ulceration. Everyone was familiar with their tolerance to handling. There must, he thought, have been an ulcerative process at work at some time to account for the cicatrix.

Dr. Fullerton said that had there been any syphilitic process in action a year ago it would not have been healed up when he first saw the case, because the patient had not been under treatment. It was true that in many cases of tertiary syphilis there was little pain and that the posterior wall of the pharynx was a favourite seat of such lesions; but, if tertiary syphilis had been present a year ago in this case and had been the cause of all the visible changes, he was sure that the patient would have had to seek medical advice for her throat condition. There is absolutely no history of her ever having had a sore throat except the irritation a year ago. The condition present had, moreover, extended over the superior surface of the soft palate, and if it had been gummatous it would probably have caused a perforative ulcer.

Dr. Downie said that that was not a necessary consequence.

Dr. Fullerton replied that perforation did very frequently occur in such circumstances. Had the condition been one of tertiary syphilis he would, further, have expected the cicatricial tissue to have been more distinct, because of the depth of ulceration. There seemed rather to have been merely a destruction of the mucous membrane proper, laying bare the submucous layer. As regards the openings in the pillars of the fauces, their symmetry and the perfect regularity of their edges, without cicatricial tissue, were all against their being syphilitic, as were also the facts of the patient's personal and family history.

Dr. Rutherford asked as to the bearing of the absence of the tonsils on the question of the origin of the affection being congenital or otherwise. Was it a common occurrence to have, as a congenital defect, entire absence of tonsillar

structure? At the normal site of the tonsils, were the appearances such as Dr. Fullerton would expect to find from purely congenital defect, rather than from cicatrisation?

Dr. Fullerton replied that the loss of mucous membrane and consequent thinning seemed to have crept forward into the cavity usually occupied by the tonsils, but that that would not have been sufficient to destroy the tonsils, if present. He quoted from the notes of similar cases, which he had found recorded, to show that absence of the tonsils had been there also described.

Dr. Howie thought that if the case had been syphilitic there would have been more ulceration of the palate and more marked cicatrisation.

Dr. Munro Kerr asked if it was not possible for such a condition to arise from diphtheria or very bad scarlatinal sore throat. He remembered cases in Belvidere with extreme ulceration of the throat in scarlet fever.

Dr. Fullerton was more inclined to look upon the destructive lesion in his case as being diphtheria or scarlatina than as being syphilitic. He did not think, however, that that would account for the condition of the pillars of the fauces.

IV.—PATIENT, THE SUBJECT OF THE INHERITED SYPHILIS, WITH REMARKABLE ENLARGEMENT OF THE SPLEEN.

BY DR. JOHN H. CARSLAW.

This patient, who had come under Dr. Carslaw's observation at the Western Infirmary Dispensary, was a lad, 18 years of age, but markedly undeveloped in body and in mind, being short in stature, of irascible temper, and having no growth of pubic hairs or other indications of his having reached puberty. There was a history of his having had snuffles and sores about the mouth in early infancy, but no rash had been seen. Previously to the pregnancy which ended with his birth, his mother had had a miscarriage at the sixth month.

When he was 8 years of age patient had received a blow upon the head, and within the following year had become quite deaf, subsequently losing the power of articulate speech. On account of the deafness Dr. Thomas Barr had been consulted some time ago; the examination then had resulted in a diagnosis of otitis intima, probably of syphilitic origin, and that diagnosis had more recently been confirmed by Dr. Barr.

When seen first by Dr. Carslaw, on 1st December, 1894, the complaint of the patient, as stated by his mother, had been of "lumps" in the abdomen, of which he had been conscious for

about two months. These "lumps" had been discovered to be enlarged liver and spleen, and the enlargements were still readily demonstrable. That of the *liver* was chiefly of the right lobe, and the hepatic dulness in the right nipple line had a transverse measurement of seven inches. The surface of the organ was somewhat irregular. The *spleen* was still more markedly increased in size, the lower border extending to a point two inches below the level of the umbilicus, and the dulness measuring four inches above and five inches below the costal margin—in all, nine inches in long diameter. The inner border could be felt very readily through the abdominal wall, and gave the impression of two distinct notches; it approached very closely to the middle wall in front. The organ was somewhat tender to palpation, and its surface, like that of the liver, felt slightly irregular. The superficial abdominal veins were dilated, but there was no ascites and no jaundice.

Attention was also directed to the patient's physiognomy, to the depression of his nasal bones, and to the bosses on the frontal bones. The teeth did not present the typical characters described by Hutchinson, and there was no evidence of interstitial keratitis. The right disc was, however, pale, and its arteries small; examination of the left retina had been unsatisfactory on account of "fogging;" the pupils were unequal, the left being larger than the right.

As negative points, it was also mentioned that the blood had been examined, and found not to contain an excess of white corpuscles, and that no lymphatic glandular swellings had been detected. Examination of the thoracic organs also had shown nothing abnormal.

The question had been considered as to whether amyloid disease might not be part-cause of the enlargement of the abdominal viscera, and in this connection it was stated that, while there was no diarrhoea, albuminuria had been observed on several testings. In the case of an out-door patient it was difficult to get records of quantity of urine passed, but one measurement for twenty-four hours had been made, showing 60 oz., with specific gravity of 1015. The specific gravity on another day had been 1010.

Enlargement of the spleen, in congenital syphilis, had been described by various authors. Hutchinson mentioned it in his *Manual* at p. 256, and quoted a paper by Barlow, published in the *Transactions of the Pathological Society* (1877). By the latter author, reference was made to a paper read by Gee before the Royal Medical and Chirurgical Society in 1867,

in which the following statements occur:—"In about half the cases of congenital syphilis the spleen is enlarged, so that it can be felt during life. In about one quarter the enlargement is really great. Sometimes, in addition to enlargement of the spleen, there is enlargement of the liver or lymphatic glands." . . . "The degree of the splenic enlargement may be taken as an index of the severity of the cachexia with this qualification that the spleen does not diminish *pari passu* with the cachexia, but remains, it may be for years, more or less enlarged, as a monument of what the cachexia has been."

The present case seemed specially remarkable on account of the extreme degree of the splenic enlargement. The fact that the patient was stated only recently to have become conscious of the swelling naturally suggested that it was increasing, and raised the question of the possibility of an amyloid condition being superimposed on some previous enlargement.

Dr. Wallace Anderson said that the chronicity of the febrile action, or of the blood irritation, in syphilis, made it quite reasonable to suppose that one should get enlargement of the spleen in that disease.

Dr. Hawthorne thought the case an interesting one and important, as directing attention to inherited syphilis as a possible cause of splenic enlargement, and as showing the necessity of examining the spleen in any obscure case in which the recognition of inherited syphilis might assist in diagnosis. *Dr. Carslaw's* case brought to his mind that of a boy, at present in the Western Infirmary, whose symptoms were obscure, but who was undoubtedly the subject of inherited syphilis, although the evidences of it were not so strikingly marked as in the patient just shown. This other patient had Hutchinson's teeth and opacity of the corneæ. His spleen also was palpable, and there was no doubt that the enlargement of it, too, was due to syphilis, there being no other explanation to be found. *Dr. Hawthorne* did not know to what extent *Dr. Fullerton* had pushed the examination of his patient's children (*cf. supra*). It would be interesting to know if there was any enlargement of their spleens.

Dr. Fullerton replied that he had seen the children, but had not examined them as regards that point.

Dr. Middleton quite concurred with the opinion that the splenic enlargement in the case shown was to be associated with inherited syphilis. He could not recall any case of inherited syphilis showing such marked enlargements of the

abdominal viscera, although he had seen them as extreme in the acquired disease.

Dr. Carslaw, referring to *Dr. Wallace Anderson's* remark, added that in *Barlow's* paper the splenic enlargement in such cases was considered to be not amyloid and not gummatous, but comparable to the splenic enlargement of typhoid fever, and associated with the conception of syphilis as a long drawn-out fever.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1894-95.

MEETING IV.—14TH JANUARY, 1895.

The President, DR. KNOX, in the Chair.

I.—SPECIMEN OF VERMIFORM APPENDIX REMOVED BY OPERATION.

BY DR. J. CRAWFORD RENTON.

Dr. Renton showed, as a fresh specimen, a vermiform appendix which he had removed by operation. The patient was a boy who had had five attacks of appendicitis, in two of which *Dr. Renton* had seen him, with his usual medical attendant. He (*Dr. Renton*) had strongly advised removal; and, on opening the abdomen, they had found the appendix curled upon itself, and closely adherent to the bowel. It had been with considerable difficulty that they had managed to dissect it off. The curling could still be seen to some extent in the specimen.

Dr. Renton hoped, at some future time, to report to the Society several cases in which he had performed similar operations, in order that opinion might be expressed as to the cases in which removal should be resorted to, and those in which it should not.

II.—SPECIMEN OF SARCOMATOUS TUMOUR OF MEDIASTINUM, WITH EXTENSIVE SECONDARY FORMATIONS.

BY DR. C. O. HAWTHORNE.

Dr. Hawthorne showed the above as a fresh specimen. The case is to be published in detail, and it is sufficient meantime to mention, as to history, that the patient, a man of 49 years,

had been under observation since last summer, the leading symptoms being hoarseness, shortness of breath, flushing of the face, and loss of flesh, and that there had been detected during life a pulsating swelling just under the left costal border. The *post-mortem* examination had revealed not only an intrathoracic sarcomatous tumour, but also extensive secondary growth in the left lobe of the liver, &c.

III.—PATIENT FROM A CASE IN WHICH EXPLORATORY INCISION
WAS PERFORMED FOR ABDOMINAL TUMOUR A YEAR AGO;
DISAPPEARANCE OF THE TUMOUR.

BY DR. J. CRAWFORD RENTON.

Dr. Renton showed a patient, aged 55, who had been sent to him by Dr. Sinclair, with a large tumour affecting the stomach, causing persistent vomiting and emaciation. The abdomen was opened with a view to performing gastro-enterostomy, but the tumour was found so adherent that no operation could be performed. The patient recovered from the abdominal section, and now, eighteen months afterwards, is quite well, and the tumour has entirely disappeared. The tumour was evidently inflammatory, and corresponds with those recorded by Mr. Greig Smith and Mr. Barker.

It is interesting and instructive to note the fact of the effect of the abdominal section. In this connection, attention may be directed to the fact that a similar disappearance of tumour has occurred in the case of pyloric disease shown to the Society on 14th November, 1892,¹ and reference may be made to Professor George Buchanan's paper on "Faith Healing," published in the *Lancet*, 1885.

Dr. Bryce, who had assisted at the operation, stated that there had been no doubt about the cachectic appearance of the patient, and that he had had no difficulty in feeling the tumour before the abdomen was opened. During the operation he had felt the hard, nodular mass, extending all over the greater curvature of the stomach, and he had then had no doubt about its being malignant. The idea of a chronic inflammatory tumour had not occurred to him, and his view had been, when the abdomen was closed, that the case was a hopeless one. He had assisted also at the case of pyloric tumour mentioned by Dr. Renton, and the moral of the two cases seemed to be that one should be very careful in the diagnosis of such growths. Recently he had searched through

¹ See *Trans. Path. and Clin. Soc.*, vol. iv, p. 160.

Ewald's book, and had not been able to find any reference to a similar case. That authority recognised the condition of inflammatory pyloric tumour, but there was no mention, so far as he could see, of any inflammatory tumour of the wall of the stomach of this size.

Dr. Dalziel for some time had been sceptical as to tumours disappearing after surgical interference, apart from removal with the knife. But last autumn he had had a very interesting case, which had led him rather to alter his opinion. The patient had been a lad, who had been brought to the Western Infirmary, suffering from acute intestinal obstruction of some days' duration. On operating he had found the bowels to be tied down by the omentum, which was fixed to a large tumour, a nodular firm mass, in front of the spine. At the time of operation they had agreed that it was in the lymphatic glands, and presumably a lympho-sarcoma. The patient had been dismissed with the tumour still palpable, but two months afterwards he had returned looking well and rosy, and *Dr. Dalziel* had not then been able to feel any tumour. There was no doubt that it had been in the lymphatic glands, but it had probably been tubercular, and not lympho-sarcomatous. They often saw lymphatic glandular swellings in the neck enlarging rapidly, so as to be of the size of a hen's egg, and subsiding rapidly also. Even the breast cases mentioned in the quotation which *Dr. Renton* had read from Professor George Buchanan's paper, *Dr. Dalziel* thought to be probably tubercular. He had recently removed two breasts, the subject of tumours which were like cancer in every respect, except that the history was a long one; they had been found, after removal, to be tubercular. One knew that an incision had a remarkable effect in inflammatory cases, and, as tuberculosis was a species of inflammation, it was probable that some of those cases benefited in that way. There was the well recognised fact that incision was often followed by great benefit in tubercular peritonitis. Why it was so was not clear; possibly the exposure to the air, as mentioned by *Dr. Renton*, had something to do with it.

Dr. Renton, like *Dr. Bryce*, had consulted Ewald's work, but with negative results. The result of operation in cases of tubercular peritonitis, to which *Dr. Dalziel* had referred, was often very striking. Even if one simply opened the abdomen and allowed some of the serous fluid to escape, putting in a drainage-tube, and not even washing out the cavity, the result seemed to be that the bacillus ceased to live; at all events, the patients recovered.

IV.—CHILD OPERATED UPON FOR OBSTRUCTION DUE TO
INTUSSUSCEPTION.

BY DR. J. CRAWFORD RENTON.

Dr. Renton showed this patient, a child, *æt.* 9 months, on whom he had operated for intussusception of the ileum into the cæcum. Dr. Suttie had recognised the condition, and, having tried inflation without complete effect, he came for Dr. Renton, who opened the abdomen and reduced the obstruction. The child recovered without a bad symptom. Dr. Renton gave all the credit to Dr. Suttie, who had recognised the importance of operation at once, and he thought if these operations were done far earlier there would be more successes to record.

Mr. Maylard said that it was refreshing to see a case of this kind. One saw so many where all one's endeavours were fruitless. Recently, he had had as a patient, in the Victoria Infirmary, a case which was sent from the country forty-eight hours after the onset, and almost in a collapsed condition. On operating he had found the bowel so inextricably involved that pulling on it had been fruitless. Examining the part after death, he had found that in such cases it was not by adhesions that one was prevented from reducing the intussusception, but by the fact that the resulting exudation caused swelling of the intussusceptum, especially of its apex. Within quite a short time he had had four cases coming under his care in a late stage, and operation had been performed with little hope, but still with the feeling that it was the only hope. In each of them it was impossible to withdraw the intussusceptum and he had had to make an artificial anus. In one case he had pulled the piece of bowel out of the abdomen and put a loop under it and then opened; the patient had rallied well, and for some hours looked as if recovery might take place; but, suddenly, there had been collapse and death.

Every surgeon would endorse what Dr. Renton had said about early operation in such cases, and it had been his teaching that every practitioner, on failing with conservative measures, should there and then operate with the object of reducing the intussusception. The major operations of excision and artificial anus gave a very slight chance indeed.

Dr. Knox added that those major operations gave less chance than if the condition were left alone and sloughing allowed to take place, the slough passing through.

Dr. Renton thought that when intestinal obstruction was acute and associated with much distension, it being impossible to localise the seat of obstruction, it was right to perform a colotomy as soon as possible. He had seen three cases in which this was done, and the seat of obstruction attended to afterwards.

V.—SPECIMEN OF A HYDATID CYST OF THE LIVER.

BY DR. SAMSON GEMMELL.

J. W., aged 31, hairdresser, was admitted to Ward XI, Western Infirmary, on 5th September, 1894, complaining of swelling of the abdomen, of several months' duration.

Until within two weeks prior to admission, patient was not conscious of any indisposition. He knew that his abdomen was much larger than it had been some few months previously, but this he attributed to the fact that he was taking comparatively little exercise, and was in consequence becoming stout. He cannot give any exact information as to when he first noticed the abdominal enlargement, as the condition came on very gradually, but he thinks it is several months ago. About the end of August, 1894, his friends began to remark the increase in the size of his abdomen, and, acting on medical advice, he applied for admission to the Hospital.

On admission, patient was seen to be a sparely built man, of pale complexion. The greatly distended abdomen contrasted strongly with the spareness of the chest and limbs, although he stated that he had not lost flesh greatly. As he lay in bed, respirations were easy and unembarrassed, numbering 24 per minute. The pulse was 108, rather small and wiry. Both legs and feet were oedematous, the right more so than the left. The lips were well coloured; tongue slightly coated, and bowels rather loose during the fortnight prior to admission. Examination of the abdomen showed the distension to be due to the presence of fluid in the peritoneal cavity, a very distinct wave being communicated to the hand placed on one flank, while the other was tapped sharply by the finger. There was a zone of clear percussion over the umbilical region, but both flanks were absolutely dull, and the relation of clear to dull percussion could be altered according as patient lay on one or other side. No definite information could be gained, owing to the distention, as to the condition of the abdominal organs, either by palpation or percussion.

The heart was apparently normal, and examination of the front of the lungs yielded satisfactory results. No examination was made of the lungs posteriorly at this time. Urine

was high coloured, free from deposit, and with a specific gravity of 1030. The presence of bile pigment was indicated on testing with HNO_3 , but neither albumen nor blood was discovered.

On 5th September—the day of admission—the abdominal cavity was tapped, and 282 oz. of clear serous fluid withdrawn, after which the following facts were elicited:—

There was considerable bulging of the left baso-lateral region of the thorax, of the walls generally, as well as of the interspaces. On palpation of the abdomen, a hard mass was detected, projecting from under the xiphoid cartilage, the surface of which was slightly irregular in character, and the lower border sharply defined and crescentic in outline, while the fingers could easily be passed under it. The tumour moved up and down with respiration. Percussion over the tumour yielded a dull note, continuous with the area of hepatic dulness. The measurements of the latter were $4\frac{1}{2}$ in. in the axillary line, 4 in. in the nipple line, and $4\frac{1}{2}$ in. in the middle line. Palpation further discovered a tumour projecting from under the costal margin in the splenic region, the lower and inner border being about 2 in. beyond the edge of the ribs. Continuous with this tumour there was an area of dull percussion in the left baso-lateral region, the upper border being on the sixth rib, while the measurements in the vertical and oblique diameters were 7 in. and $7\frac{1}{2}$ in. respectively. On examination of the lungs behind, there was dulness on percussion over both bases, extending up to the level of the sixth rib on the right side, and the lower angle of the scapula on the left. Over the dull area, comparatively little respiratory murmur was audible, what little there was being very distant. At the upper confines of dulness, some crackling r le was heard. Above, where the percussion sound was clear, respiratory murmur was full and free, and unaccompanied by r le or friction. Exploratory puncture with an aspirating needle was made on both sides, and a small quantity of thick, turbid and blood-stained fluid withdrawn from each cavity.

Note on 10th September.—"Fluid rapidly reaccumulated in the abdominal sac, and it was again tapped on 8th September, exit being given to 250 oz. of fluid similar in character to that previously abstracted. At the same time, the right pleural sac was tapped, and 17 oz. of a turbid, blood-stained fluid were obtained. Since, the patient has been very easy, and although the urinary secretion is scanty (18 oz. the last twenty-four hours; 17 oz. the previous twenty-four hours), it is to be remembered that, under the idea of restraining effusion, his

liquids have been restricted. Thrice a day he is having a pill with mercury, squill and digitalis, and after his meals, a mixture of iron, arsenic, and strychnine. To-day (10th September) the pulse is soft, compressible, and rapid—112."

On 16th September the abdomen was again tapped, and 274 oz. of straw-coloured serum obtained. At this time restriction of diet was withdrawn, and patient allowed to have as much fluid nourishment as he desired.

Tapping of the abdomen was repeated on 25th September, and 272 oz. of fluid withdrawn, and from that date to 14th November the operation was repeated ten times. During residence the abdomen was tapped, in all, fourteen times, and the total quantity of fluid withdrawn was 3,737 oz.

The right pleura was tapped twice, and a total quantity of 45 oz. of turbid, blood-stained fluid abstracted. Toward the end of September it was noted that patient was losing flesh and colour to a notable extent, and that there was a decided icteric tinge in the conjunctiva.

The condition became worse till 16th November, when it was noted as follows:—"During the past two days patient has had persistent vomiting and some diarrhoea, and no nourishment has been retained. There has been considerable complaint of abdominal pain. The icteric tinge of sclerotic has deepened, and patient's whole condition indicates progressive weakness."

He died on 17th November, without any fresh developments.

Dr. Gemmell stated that there had been no difficulty in the way of interpreting the fluid accumulation in the abdomen as due to portal obstruction. As to what disease was causing that obstruction he had been at a loss to determine. He had thought of cirrhosis and of malignant mischief, but the idea of its being hydatid disease had not occurred to him, or to others who had seen the case.

Report of Post-mortem Examination by Dr. Joseph Coats.—Summary: Hydatid Cyst of the Liver, containing altered Membrane and Contents, largely replacing Right Lobe, and impinging on the Portal Region.

External Appearances.—There is slight œdema of the lower limbs. There is much fluid in the abdomen.

Thorax.—Heart is normal in size. The external fat is rather deficient. Left lung is non-adherent. It is somewhat hyperæmic posteriorly. There are a few ounces of fluid in

the right pleural cavity, and this lung is slightly adherent behind at the apex; otherwise it is like the left.

Abdomen.—Besides the fluid, which is yellow and generally clear, the abdomen presents considerable flakes of fibrin, and there is a somewhat generalised thickening of the peritoneum.

Spleen.—The spleen is much enlarged; weight, 655 grammes. The capsule is somewhat irregularly thickened. Near its lower end, posteriorly, there is a pale infarction, measuring about 2 cm. at its base.

Kidneys.—Left kidney is slightly enlarged; weight, 155 grammes. Right kidney is normal, except the adhesions to be afterwards mentioned.

Liver.—The liver is occupied by a large cyst, which almost replaces the greater part of the right lobe, and entirely separates the left lobe from the right. It measures, in general, about 14 cm. in diameter, and it extends right through the liver tissue, coming to the surface all round, at front and behind, as well as above and below. It is bounded on the left by the suspensory ligament; to the right of the sac there is a piece of liver tissue, extending only about 3 cm. from the right border of the cyst, but having the whole breadth of the liver from before backwards. The left lobe of the liver is abnormally large, and, in particular, there bulges from the lower surface of this lobe a piece of rather soft liver tissue, having a diameter of about 12 cm., and projecting from the general level of the left lobe about 5 cm. The Spigelian lobe is also increased in size, and more isolable than normal. It has a diameter from before backwards of 7.5 cm. The cyst comes to the surface below the portal region. The hepatic duct passes along the wall of the cyst for a distance of about 6 cm. to reach the left lobe, and a less distance to the right and Spigelian lobes. The portal vein also is in contact with the wall of the cyst at its entrance into the liver, where it seems to be somewhat dilated. The hepatic vein is in contact with the wall of the cyst, but does not seem to be greatly impinged on by it. In the neighbourhood of the hepatic vein the liver has been considerably adherent to the parts around—viz., to the right suprarenal capsule and kidney, and there is here considerable condensation of tissue. The wall of the cyst is composed of a dense connective tissue. Its contents are turbid, yellowish-brown material, in which are many glistening scales, and a substantial, but somewhat friable, membrane. The membrane is smooth externally, while internally it presents innumerable small round elevations. On removing one of the latter, it is seen to be composed of a stratified

membrane externally, inside which is a round cyst containing many hydatid heads, which are opaque, apparently from calcareous infiltration.

It had thus been determined that the nodule felt during life in the epigastrium was the left lobe of the liver, and that the tumour felt in the splenic region was the enlarged spleen.

Prior to the *post-mortem*, Dr. Gemmell had made no enquiry as to the patient's residence, but he had afterwards found that he had practically lived all his life in Glasgow, and had never been out of the island; he had never been in Orkney or Shetland. Dr. Gemmell knew of two other cases in which the patients had not been out of Scotland, and yet had had hydatid disease. In their cases it had been diagnosed and treated successfully.

It was to be remarked, as regards the case now shown, that the cyst had not presented itself below the margin of the ribs, even after the removal of the abdominal fluid. Had it done so they would have been able to detect from it elasticity, if not fluctuation.

The portal obstruction had been explained by the conditions found on *post-mortem* examination.

Besides the naked eye specimen, there were shown, under the microscopes, samples of the contents of the cyst with brood capsules (undergoing infiltration with lime), hæmatoidin crystals, cholesterine crystals, and fat drops.

Dr. Bryce said that, when he had been house-physician with *Dr. Brackenridge*, a patient had come from Glasgow (Anderston district), who had a tumour of the right lobe of the liver. He had lost flesh and had been pallid, with an icteric tinge of the conjunctiva. The diagnosis had at first been that of malignant disease of the liver. The man had always lived in Glasgow, and had never been out of that city until he had come to the Edinburgh Royal Infirmary; he had never kept a dog. *Dr. John Duncan* had seen the case in consultation, and had made an exploratory puncture. The fluid obtained had been put under the microscope, and attention had, first of all, been directed to some epithelial cells, which were held rather to confirm the diagnosis of malignant disease. *Dr. Bryce*, however, had detected hooklets, and he mentioned the facts of the case to show how unprepared both physician and surgeon had been for the discovery of hydatid disease. Incision had been made and a drainage tube inserted, the patient gradually making a good recovery.

VL.—SPECIMEN OF HEART FROM CASE OF CONGENITAL CARDIAC DISEASE SHOWN TO THE SOCIETY ON 9TH APRIL, 1894.¹

BY DR. MIDDLETON.

Ten days after the patient in this case was shown to the Society, he had begun to show symptoms of pulmonary disease, and there had been rapid development of tubercular disease of the lungs, with severe hæmoptysis. He had gone to reside near Hamilton, and had died there early in December. Dr. Middleton had been able to obtain the present specimen through the kindness of Dr. Livingstone Loudon.

On examination, it might be seen that there was extreme contraction of the segments of the pulmonic valve. There would also be noted an opening in the inter-auricular septum, which in the fresh state had readily admitted the middle finger. Across one segment of it a thin thread-like band stretched. This opening was not the patent *foramen ovale*. That orifice was indeed patent, so as to admit the passage of a glass rod, but it was valved, so that there could have been no trouble on its account. The right ventricle was hypertrophied and much enlarged. The interventricular septum was intact.

Dr. Middleton had seen several cases of congenital cardiac disease that survived puberty, but this was the first occasion in which he had been fortunate enough to obtain the heart after death.

VIL.—SPECIMEN OF A CYLINDER-CELLED EPITHELIOMA OF THE LIVER WITH CYSTS.

BY DR. C. O. HAWTHORNE.

The case from which the above specimen was obtained is to be published in full, and particulars as to the clinical history will then be given. It is necessary here merely to mention that the primary tumour had been a cancerous ulcer (cylinder-celled epithelioma) of the stomach, which, however, had given rise to comparatively trivial gastric symptoms. The liver at the *post-mortem* had been found to contain cancerous masses, and its right lobe, to a great extent, to be replaced by several large irregular cysts.

Mr. Maylard was reminded by Dr. Hawthorne's case of the one from his ward which had been shown during last session by Dr. T. K. Monro.² In it a cancerous tumour of the stomach had been discovered at the *post-mortem*, although unsuspected

¹ See *Glasgow Medical Journal*, 1894, vol. ii, p. 130.

² See *Glasgow Medical Journal*, 1894, vol. i, p. 150.

during life. Instances of gastric cancer without prominent symptoms were not so uncommon as seemed to be indicated by Dr. Hawthorne. The extensive secondary growth here was certainly very extraordinary, considering the small size of the primary ulcer. Sometimes, on the other hand, one saw a very large gastric tumour with very little secondary development. He might refer to the similar occurrence in some cases of a small mammary scirrhus with enormous deposits in the glands and elsewhere, and in others of a large tumour in the breast with very little secondary growth. Dr. Hawthorne's case raised one of the difficult points in pathology—viz., how these cancerous tumours took on this cystic formation.

Mr. Maylard presumed that the secondary growths were of similar microscopic structure to the primary.

Dr. Hawthorne replied in the affirmative.

VIII.—PLASTER CASTS OF DUPUYTREN'S CONTRACTION.

By DR. JOHN H. CARSLAW.

The casts, which were shown as card specimens, were taken during maximum degree of extension from a case of Dupuytren's contraction.

The patient, a man over 50, had noticed the condition to develop gradually during the last few years.

His mother, a maternal uncle, and a maternal aunt were similarly affected.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1894-95.

MEETING V.—27TH FEBRUARY, 1895.

The Senior Vice-President, DR. MALCOLM BLACK, in the Chair.

A YEAR'S WORK AT THE WEST END BRANCH OF THE GLASGOW MATERNITY HOSPITAL.

By DR. JARDINE.

Dr. Robert Jardine read his report of the work done in the West End Branch of the Maternity Hospital. The report is published in full on page 266.

In the discussion which followed,

Dr. Stark said the Society was very deeply indebted to *Dr. Jardine* for this and the former reports he had given. Many of the Fellows had told him they looked forward to them with great interest, as they were so racy. In addition to that they were an honest account of good work. He was sorry the meeting was so small, but the great pressure of work had kept some of the men away, while others were detained by illness. He was glad to hear *Dr. Jardine* had been so successful in saving the perineums. He would like to hear how he had managed it. Among the better class primiparæ he himself had not been nearly so successful as among poorer ones. Perhaps the mode of life had something to do with it. He asked if *Dr. Jardine* waited till the temperature rose to 102° before doing anything, or if he tried medicine of any kind, and also, what kind of douche he used. He had seen one case of imperforate anus which had not lived. If an opening could not be made from below, he did not think there was any use opening the sigmoid. He agreed with *Dr. Jardine* that straight forceps ought to be obsolete. He used axis traction, and considered it by far the best.

Dr. Alexander Miller said he had enjoyed all the reports very much. Similar reports should be given by all the institutions. He considered the medical officers were morally bound to give them to the profession. He trusted they would be continued by *Dr. Jardine's* successor. They gave a record of honest, steady, practical work, and were an honour to *Dr. Jardine* and those associated with him. He had always used *Barnes's* forceps, and had found them quite sufficient. He had never tried axis traction ones, and did not know if delivery with them was easier than with ordinary ones. He used them in about 25 per cent of his cases, and he did not consider that he was guilty of using them too often. He suggested that the cause of the persistent high temperature in the case related was a nervous one.

Dr. Malcolm Black said that it had given him great pleasure to listen to these reports, and that the Society was extremely indebted to *Dr. Jardine* for the trouble he had taken from year to year. He hoped they would be continued. It would be an excellent thing if reports of the entire Maternity Hospital work were given in the same way. A great many interesting cases were buried in the clinical journals of the Hospital, and a great many out-door ones were never recorded at all. With very little trouble notes of these could also be taken. He entirely agreed with *Dr. Jardine's* advocacy of

axis traction forceps. He used them in all high cases. Much greater force could be used with safety than was possible with ordinary curved ones. He believed that the risks run by puerperal women in their own homes was not so great as in hospital. He had seen cases recover much better at home after severe craniotomy than they had done before in the Hospital.

Dr. Jardine, in replying, said that he was glad the report had been so well received. The preparation of them had given him great pleasure. At all events they were a true record of the work he had done. In reply to *Dr. Stark*, he said he believed the secret of saving the perineum lay in having primiparous patients thoroughly under chloroform and to deliver the head very slowly. The axis traction forceps gave complete control over the head. With these cases one was not hampered by anxious friends so much as in private better-class work. In regard to the treatment of high temperatures, he never put any dependence on drugs alone. The nurse always gave a vaginal douche if the temperature rose to about 100°, and if it rose further, he always douched out the uterus himself, using a curved, grooved glass nozzle and an ordinary Higginson's syringe. Although he had, in very many cases, used 1 to 2000, and even stronger perchloride of mercury solutions, he had never once seen any symptoms of poisoning. He always ended by using pure boiled water, in order that as much as possible of the albuminate of mercury, which had deposited on the interior of the uterus, should be washed out. In regard to the axis traction forceps, he was glad to hear *Drs. Stark and Black* speak so strongly in their favour. Not only could you use greater force than with ordinary ones, but all your force was utilised and none lost by pulling the head against the symphysis. He could assure *Dr. Miller* that delivery with the axis traction was very much easier than with the ordinary long ones. These patients certainly recovered better in their homes. Perhaps they were more at peace when at home than in a strange place like the Maternity Hospital.

ABSTRACTS FROM CURRENT MEDICAL
LITERATURE.

M E D I C I N E.

By T. K. MONRO, M.A., M.B.

Human Actinomycosis at Lyons.—Poncet records six new cases observed in this town; all of them were confirmed by microscopic examination. When added to the cases already published, these show that the disease is not so rare in France as has been supposed. The undoubted influence exercised upon the disease by iodide of potassium countenances the suspicion that many patients, supposed to be syphilitic and cured by the iodide, have been really actinomycotic. It is probable, too, that actinomycosis, in its frequent seat at the angle of the lower jaw—where it gives rise to diffuse bogginess of the tissues, trismus, and abscess—has been sometimes mistaken for a different condition due to disease of a wisdom tooth. —(*Gazette Méd. de Paris*, 26th January, 1895.)

A Case of Staphylococcus Infection Simulating Typhoid Fever.—A man of 43 years, who had been long under treatment for diabetes mellitus, was suddenly attacked with pain and stiffness in the neck and delirium. Some of the cervical lymphatic glands were enlarged, and the patient complained of pain in swallowing. Examination of the pharynx was negative. The temperature rose for several days, after the manner of a typhoid curve; the pain in the neck disappeared; the patient became stupid; the spleen was enlarged. On the seventh day a roseolar eruption appeared, but it passed off in twenty-four hours. The urine contained albumen, sugar, and an increased amount of urobilin. The bowels were constipated. A diagnosis of typhoid fever was finally made. The patient died on the tenth day. At the autopsy no enteric lesions were discovered. The enlarged spleen gave cultures of staphylococcus pyogenes flavus, and more careful examination revealed a phlegmonous inflammation of the retropharyngeal tissue, due to the same organism. The general septic infection had evidently proceeded from this. —(Quoted in *Amer. Jour. of the Med. Sc.*, January, 1895.)

Green Stools, due to the Bacillus Pyocyaneus.—A remarkable case is reported by Salus, in which a green colour was imparted to the faeces by the growth in them of this bacillus. A woman, aged 26, underwent laparotomy for the removal of an ovarian tumour. On the breaking up of adhesions, the wall of the gut was injured, so that a fecal fistula formed at the lower angle of the wound. About two weeks after the operation, it was noticed that the faeces which stained the dressing were green in colour. Fresh portions of faecal matter were obtained, after careful washing of the wound, for bacteriological investigation, and pure cultures and subsequent inoculations in animals disclosed the presence of large numbers of the bacillus pyocyaneus.

Kossel reports a case in which the same bacillus was the cause of green diarrhoea in an infant four weeks old. —(Quoted in *Amer. Jour. of Med. Sc.*, January, 1895.)

Primary Suppurative Pleurisy Caused by Pneumococci.—Pleurisy due to pneumococci may be secondary to pneumonia or may be primary. In the latter case, the organism settles on the pleura, which it reaches by the air-passages or by the blood or lymph channels. Netter states that at least two-thirds of the pleurisies of children are caused by the

pneumococcus. Among their special characteristics are the toughness, thickness, and greenish-yellow colour of the exudation, which consists of thick membrane and pus, the frequent occurrence of vomiting, and the comparatively mild course of the disease.

It has recently been asserted that primary pleurisy due to the pneumococcus may present the clinical features of pneumonia—initial rigor, high fever, and even rusty sputum; while the physical signs are: dulness, friction, no bronchial breathing, and no crepitant râles. After death, the lungs are found absolutely healthy, and the pleura contains pus.

The writer relates the case of a soldier, aged 21, who, after recovery from röteln, suffered from shivering, fever, headache, and a stitch in the right side. The voice was hoarse, cough frequent, and expectoration tough and yellow with red streaks. There was dulness with enfeeblement of the respiratory murmur at the right base. There was no bronchial breathing or moist râle. Improvement began in a few days, and ultimately the patient recovered completely without surgical intervention. While the effusion was still present in the pleura, a small quantity was withdrawn for examination, and pneumococci were found in it.—(*Deut. Med.-Zeit.*, 21st January, 1895.)

Syringomyelia in Several Members of a Family.—Verhoogen and Vandervelde have observed the symptoms of syringomyelia in three individuals who are children of the same parents. The diagnosis was confirmed in one case by *post-mortem* examination. The authors believe that the condition is due to a chronic primary change in the tissue of the vessel-walls, leading to softening of the nervous tissue, in the same manner as cerebral softening is produced by arteriosclerosis. The parents of these patients were addicted to alcoholic excess, and suffered from arteriosclerosis, which, in the case of the mother, had led to softening of the brain. The children were, therefore, hereditarily predisposed to vascular disease, and this, in the opinion of the authors, was the primary cause of the lesions in the nervous, muscular, and cutaneous systems.—(*Deut. Med.-Zeit.*, 3rd January, 1895.)

Dangers of Thyroid Feeding.—Béclère remarks that the benefits to be derived from thyroid feeding in myxœdema must not make us forget its dangers; for thyroid juice poisons the heart, and may cause death by syncope. This has been found by experiment on the dog.

The writer fed an ape on fresh thyroid glands from newly killed sheep. The animal died in ten days. It had survived the same treatment when tried a month earlier.

It is said that an adult and one or two children have died in the Paris hospitals from treatment by thyroid feeding, and if this be so, it is to be regretted that the cases have not been published, so that practitioners may be put on their guard against a repetition of such occurrences. In connection with this mode of treatment the pulse is the best guide. Not only must its acceleration be noted, but perhaps still more its instability. Under the influence of the slightest effort, its frequency may be raised to 110, or even 160. At the commencement of treatment the patient ought to be confined to bed, or at least to his room, and he ought to be warned to avoid every exertion that might suddenly accelerate the heart's action. He ought to be kept under observation for some time after the treatment has ceased, because thyroid juice seems, like digitalis, to have cumulative effects. Some patients who died suddenly in England had taken no thyroid glands for some days before the fatal issue. The idiosyncrasies of patients are very various, and it is well to intermit the administration from time to time until the useful and safe dose of the remedy for the particular individual has been ascertained.—(*La France Médicale*, 25th January, 1895.)

Etiology of Diabetes.—Lancereaux distinguishes four forms of this disease—nervous, pancreatic, arthritic, and constitutional. The last is the most common and best known. The first and second forms, in their external

aspects, resemble one another very closely, so that it is often difficult to separate them. The condition of the liver may afford assistance. This organ is of normal size in pancreatic diabetes, while in the nervous form (Claude Bernard's variety) it is always enlarged. But often the distinction cannot be made. In the arthritic and constitutional types, heredity is the principal etiological factor; great excitement and physical and intellectual strain are occasional causes. Pancreatic diabetes is purely accidental, and may be caused by obstruction of the canal of Wirsung by a calculus with secondary atrophy of the cells of the gland, or by a primary lesion of the pancreas. The nervous variety of diabetes is due to causes brought about by a local disturbance of the nervous system.—(*Deut. Med.-Zeit.*, 17th January, 1895.)

Chronic Ulcer of the Duodenum: Death from Anæmia.—Devic and Roux, of Lyons, publish the case of a man, aged 36, who was supposed to be suffering from an ulcer either in the stomach or in the duodenum. Pain seated under the gall-bladder, black stools, and the absence of hæmatemesis suggested the duodenum as the seat of lesion. Repeated hæmorrhage induced profound anæmia, to which the patient succumbed. A large ulcer was found, after death, at the junction of the first and second parts of the duodenum. The result of an examination of the stomach contents was considered to support the theory that ulcer, even of the duodenum, is caused by excess of hydrochloric acid.—(*Deut. Med.-Zeit.*, 17th January, 1895.)

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Menstruation in Monkeys.—Mr. Walter Heape, of the Cambridge Zoological Museums, read a paper on this subject before the London Obstetrical Society, published in that Society's *Transactions*, 1894, p. 214. Mr. Heape began by quoting from St. Hilaire and Cuvier to prove that certain species of monkeys did menstruate regularly, and also from Mr. Bartlett, of the Zoological Gardens, and from Mr. Sutton. Some monkeys kept by himself had menstruated regularly in Calcutta, and two had menstruated regularly for a short time even in Cambridge. Mr. Sāngal, of the Gardens in Calcutta, assured him that all monkeys menstruate regularly there.

The species on which Mr. Heape's observations were made, and from which the specimens he showed were taken, was the *Semnopithecus entellus*. The external signs of menstruation are only variable in extent in monkeys: an enlargement of the vulva and of the nipples is invariably seen; and in *S. entellus*, where these parts are black, this is the only sign he had observed to accompany the discharge of blood. In *Macacus* and *Rhesus* the nipples are not only swollen, but also highly congested, and assume a deep red colour; while the skin of the buttocks, which is wrinkled and hard in the intermenstrual period, becomes, during menstruation, soft, swollen, tense in fact, and most brilliantly red in colour; the abdominal wall for a short distance upwards, the inside of the legs as far down as the heel in some cases, and the under surface of the tail for more than half its length, are also coloured a vivid red. The swelling was characterised as enormous in some baboons, and evidently caused pain and discomfort, as shown by the animal's care in sitting down. The vulva and rectum were almost closed, and the buttocks resembled a huge tomato in appearance. In this connection it is interesting to note that the motor roots of the first three sacral nerves supply the vagina, while the sensory roots of the same nerves supply the skin of the flushed area above described. Mr. Heape seemed to think it probable that the flushing of the superficial parts may draw off from the uterine tissue a considerable portion of blood, which might otherwise serve to congest the uterine mucosa; so that the

amount of blood in the menstrual discharge was inversely proportional to the congestion of the external parts. However, the baboon observed was too savage to allow of the menstrual discharge being obtained for examination. In the *S. entellus* and some others the discharge was found to consist of white, stringy, mucus-like material, with blood corpuscles, squamous and columnar epithelial cells, and connective tissue corpuscles in various quantities and proportions.

Mr. Heape then proceeded by means of sections to demonstrate eight stages in the menstrual phenomena of the uterus of *S. entellus*:—During the first, or resting stage, or intermenstrual period, the mucosa consists of a single row of cubical cells continuous with those of the glands which lie in the stroma. This stroma is a “plasmodium”—a vast number of nuclei connected by protoplasmic processes: this tissue gives no indication of separate cells: on its lower side this stroma is bounded by the muscular wall of the uterus. In the second stage the stroma grows by multiplication of nuclei in its superficial part. In the third stage the blood-vessels become increased in size and number. These degenerate, and break down in the fourth stage, blood escaping into the stroma, and forming lacunæ in the fifth stage, lying under the epithelium. This stage is first marked on the dorsal side of the uterus, where the placenta is first developed in these monkeys. In the sixth stage the lacunæ burst, and pour their blood into the cavity of the uterus, thus leading to the seventh stage, or the formation of a clot in the uterus. This clot contains *débris* of the superficial third of the mucosa, but no characteristic decidual cells were seen. Before the clot is expelled the eighth stage begins, in which a fresh epithelium grows over the torn surface: the epithelium is partly derived from the glands and partly from the stroma. Mr. Heape remarks further that many blood-corpuscles lying in the stroma are enclosed in newly-formed vessels, and are returned to the circulation. During the formation of the lacunæ many leucocytes are drawn to the part, but are not extravasated to any great extent, but rather cling to the inner walls of the blood-vessels. The explanation is suggested that there is an irritant locally in the blood surrounding these, according to Metschnikoff's views, and that the blood being locally poured out, the irritant passes off without requiring the aid of the leucocytes.

In the discussion, Mr. Alban Doran made remarks on the effect of climate: in the Arctic winter total suppression of the catamenia was normal, as also the suppression of sexual appetite in both sexes. Mr. Routh thought that the growth of the epithelium from the stroma explained the rapid restoration of the mucosa after curetting.

The President contrasted Mr. Heape's observations with those of Mr. Bland Sutton, who had found that in the macaques there was no loss of substance in the uterine mucosa during menstruation.

On the Change in Size of the Cervical Canal during Menstruation.—Dr. Herman read a paper on this subject before the London Obstetrical Society (*Transactions*, 1894, p. 250). Dr. Herman made observations on 34 women, with a view to ascertaining if there were any change, as hitherto gynecologists had, for the most part, appeared to make statements on the subject based on theory rather than observation, though Dr. Burton had found it more easy to pass a sound in six women who were menstruating than was the case usually in women not menstruating. Dr. Herman's method was to gauge the permeability of the canal by using the largest bougie possible, beginning with one too large. Using a small one first merely indicated the dilatability, and not the size. His conclusions were that spontaneous dilatation of the cervical canal, slight in degree, takes place during menstruation; that this dilatation is at its maximum on the third and fourth days of menstruation; and that this dilatation takes place in those who menstruate with pain as well as in those who menstruate without pain, and in those who menstruate scantily as well as in those who menstruate copiously. The measurements show no marked concomitant variation between the amount of dilatation and the amount of pain or the amount of the flow.

Complete Obliteration of the Uterine Cavity after Curetting.

—Fritsch relates a case in the *Centralbl. für Gynæc.*, 29th December, 1894. Mrs. X., a primipara of about 25, was normally delivered of a live child in January, 1892. She suffered, however, from continuous hæmorrhage, though remaining free of fever. Four weeks after delivery the uterus was curetted by a specialist, and, according to the story of the husband, the curette was used very freely, and a piece of "flesh" was drawn out, which seems to have astonished the doctor, who was unable to replace it with his finger. A tampon was applied, and the patient was cured of her hæmorrhage, and all treatment stopped at the end of a week. She did not, however, menstruate after, and on this account, as well as because of sterility, she consulted Dr. Fritsch in May, 1894.

Physical examination showed the vagina to be patulous; cervix small and hard; os uteri partly closed, with a small dimple at the left side; bimanually the uterus was easily found to be small; pelvis otherwise was normal. The sound could not be passed. The cervical canal was laid open, but the finest probe could not be passed. With knife and dilator, a cavity was dug out to a depth of 2½ inches, when the fundus was reached without having laid open a natural cavity. In spite of tents, the cavity closed up completely in a fortnight. Seen again in October, 1894, the patient revealed the same condition of the uterus as at the first visit, and she otherwise enjoyed good health. She was advised to have no further treatment.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Exophthalmic Goitre.—Chibret, of Clermont Ferrand, has lately treated exophthalmic goitre with large doses of sodium salicylate, and declares that he is satisfied with the results. The cases which he describes seem certainly to have benefited very considerably from the treatment pursued. The doses which he administers are very large—5 grammes of the drug four times daily. This quantity, he says, if given in half a litre of fluid, is, as a rule, well tolerated, and does not give rise to any severe symptoms. Chibret tries to connect exophthalmic goitre with gout, and says that, generally speaking, in the pathological antecedents of persons affected with Basedow's disease arthritis is to be found.

On the Artificial Production of Glaucoma.—Although ever since we read Priestley Smith's first book on *Glaucoma*, which appeared in our student days, we have thought that his explanations amply satisfied most cases; yet we think it right to give a synopsis of the opinions not long ago expressed by Knies in *Von Graefe's Archiv.*:—

From numerous experiments made by injecting potassium ferrocyanide into the vitreous humour in a living animal, thereafter killing the animal, making a section of the eye, and staining it with perchloride of iron, he comes to the following conclusions:—(1) The aqueous humour is formed not only by the ciliary body, but also to a slight extent by the posterior structures of the eye; (2) The aqueous humour escapes from the eye not only by the spaces of Fontana, but in small quantities by the cornea when the corneal endothelium is intact and the tension normal.

He further conducted a series of experiments having for their object the establishment of an aseptic inflammation in the anterior filtration passages. The substances injected were chiefly terebenthin and olive oil. In several cases the author noticed high tension and mydriasis. On examining the eyes at this stage, he found œdema of the cornea and coagulation of the vitreous body and aqueous humour, which, he says, shows that they had undergone

some chemical alteration, since these substances do not, as a rule, coagulate. This Knies believes to be due to an exudation coming from the vessels of the retina and ciliary body, which found its way into the spaces of Fontana. Coagulation in this situation prevented the normal excretion of fluid, this stoppage causes the onset of glaucoma, which passes off so soon as the coagulation is absorbed. If the irritation is intense and persistent, there is cellular proliferation round the canal of Schlemm, which may terminate in iridocyclitis. Knies thus considers glaucoma as an iridocyclitis, in which the excretion of liquid by the anterior passages is embarrassed, at first temporarily and then permanently. The latter takes place when the periphery of the iris has become attached to the cornea. According to this theory, the cause of glaucoma is a local iridocyclitis, caused by some unknown agent passing through the spaces of Fontana on its way to the canal of Schlemm. It does not, however, attempt to account for the fact that glaucoma almost never attacks myopes, and that it is a disease occurring chiefly after middle life. Priestley Smith himself has suggested that certain cases of glaucoma are probably due to an increase in the specific gravity of the aqueous, and hence the high tension in descemetitis.

Treatment of Xerophthalmia by Suturing of the Eyelids.—Roudine lately showed a case in which he had sutured the eyelids together three years before. The patient had had sclerosis of both corneæ with only quantitative vision. The borders of both eyelids, except for a small part at the centre, were united together. The result was good, as the cornea was seen through the central opening to be perfectly clear, and the patient could see the eye of a needle.

Disappearance of Myelinated Fibres from the Retina in Tabetic Optic Atrophy.—While, as a rule, the fibres of the optic nerve do not retain their medullary sheath beyond the marginal disc, it is not uncommon to find a patch of medullated fibres in the neighbourhood of the papilla; such patches are of various sizes, and are seen by the ophthalmoscope as shining, white areas.

Wagenmann has had the good fortune to meet with such an appearance in the fundus in a case of tabes, with optic nerve atrophy. The white spot became less apparent as the atrophy of the disc and the enfeeblement of vision advanced. Amaurosis became complete in two years, and the papilla then presented the pearly grey aspect of tabetic atrophy. The white area due to medullated fibres had entirely disappeared, while there was still some vision. Wagenmann infers that, despite the loss of their medullary sheaths, axicylinders may still retain some conducting power.—(*La France Médicale*, 4th January, 1895.)—T. K. M.

DISEASES OF THE SKIN.

BY DR. A. NAPIER.

Xanthoma Diabeticorum.—Dr. Allan Jamieson records an interesting case of xanthoma diabeticorum occurring in a man of 55. The chief peculiarities of the case were the following:—First, the distribution: the eruption was not found on the elbows, knees, or buttocks, its favourite situations. The colour was unusual. In no recorded case has there been an entire absence of distinct yellow, when the eruption was coloured at all, from some of the papules: the nearest approach to it was the brownish-yellow ring which margined several. Possibly if the patient had come under observation earlier, the colouration might have been different. The relationship to the glycosuria was indisputable.—(*Brit. Jour. of Dermat.*, vol. vi, No. 10, p. 291, 1894.)

Thyroid Feeding in Diseases of the Skin. Dr. G. T. Jackson, writing on this subject in the *Journal of Cutaneous and Genito-Urinary Diseases*, October, 1894, tabulates his researches and his own personal experience in the following words:—"Up to 1st May I have found only thirty-three cases of thyroid feeding in skin diseases reported in medical journals, most all English, as will be seen by a glance at the list of references below. These may be tabulated as follows:—

Psoriasis,	26 cases	10 cured. (1 relapse in one month.) 7 improved. 9 no change.
Xeroderma,	2 cases	both improved. Scaling lessened, and perspiration increased.
Eczema, chronic,	2 cases	1 cured; 1 no change.
Lupus vulgaris,	2 cases	both improved. One has taken the drug more than a year.
Rosacea,	1 case	no change.

Let us add to these the five cases reported by me now, namely:—

Xeroderma,	3 cases	2 improved. 1 no change.
Ichthyosis,	1 case	very slight improvement.
Dermatitis exfoliativa,	1 case	no change.

Thus up to May we have thirty-eight cases, with eleven cured, fourteen improved, and thirteen no change. When we remember how easy it is to see an improvement when we are looking for it, it is probable that we should discount the number reported "improved."

Treatment of Tinea Tonsurans.—Dr. Sabouraud supplements his well-known researches on tinea tonsurans by some suggestions regarding the treatment of its various forms.

"Dr. Sabouraud has divided the diseases previously confounded under the name tinea tonsurans, or trichophytosis, into three leading classes:—

"1. Tinea Tonsurans, with little spores caused by the microsporon Andouini, an affection which is quite frequent, and which we should designate by the name of the two authors who were the only ones to give a good description of the parasite, with an interval of fifty years between Drs. Gruby and Sabouraud. It is the old tinea tonsurans vulgaris, whose parasite is constituted by very small multiple spores. It is the variety to which Sabouraud had given the name trichophyton microsporon before having recognized that it was in reality the parasite formerly described by Gruby under the name of microsporon Andouini. This tinea is the most tenacious of all and the most obstinate in the presence of medication known till the present time.

"2. Tricophytic tinea of human origin, in which the parasite is constituted by large spores, all contained within the hair and disposed in regular chains along its longitudinal axis. This is the trichophyton megalosperon endothrix of Dr. Sabouraud.

"3. The tricophytic tinea of animal origin, which are very rare, since they are about only one-twentieth of the cases. They are due to numerous species. The parasites are characterized by spores of variable size and affect the hair in the root portion. These are trichophytos megalosperon ectothrix of Dr. Sabouraud. These last varieties are ordinarily much more readily cured than the other two.

"Dr. Martin, in his inaugural thesis, written in great part under the inspiration of Dr. Sabouraud, has made a study of the treatment of these different varieties. He proposes to begin by making an application of tincture of iodine over the whole scalp; in this way one can map out with the greatest

precision all the affected points, however small they may be, by the staining, which is much darker than that of the surrounding healthy skin.

"Aside from this, as we have already long ago said, these iodine applications at the beginning of the disease, while it has not yet had time to plant itself deeply, constitute an excellent means of treatment.

"We can thus at times circumscribe the disease, prevent extension, and then, after some days of this medication, the lesions which persist should be seriously attacked. It is understood that in all *tinea tonsurans* the hair should be kept cut close, by means of curved scissors, over the whole surface of the head, the diseased plaques encircled by an epilated border six to ten millimeters wide, the head washed with some antiseptic soap and kept constantly covered with a linen cap, to be changed every day and carefully disinfected.

"All of these precautions and this operative procedure are at the present time universally adopted in France.

"The following is what Dr. Sabouraud has newly introduced into this plan of medication:—In the trichophytoses of animal origin we are often obliged to begin with a calming treatment, for they are frequently accompanied by folliculitis and suppurative processes. We, therefore, apply either cold meal poultices or dressings of aseptic boric gauze. If there is no inflammation we apply, on the contrary, vaseline containing iodine, in gradually increasing strength, from 1 up to 20 per cent, and even go so far as to make applications of tincture of iodine and dressings of Vigo plaster, or the red plaster of Dr. Vidal (minium 2·50, cinibar 1·50, diachylon 28).

"In the *tinea tonsurans* having large spores and of animal origin Drs. Martin and Sabouraud recommend, after washing and peripheral epilation, that every day or every second day, according to the irritation of the plaques, an application of tincture of iodine be made, and over this a layer of Vigo plaster. It appears that the results are better when the same piece of plaster is reapplied until it can no longer be used.

"In cases where the points of attack are extremely numerous, small and scattered over the whole scalp, Dr. Sabouraud has employed with success iodized cotton, applied over the whole scalp in thick layers and renewed every second day.

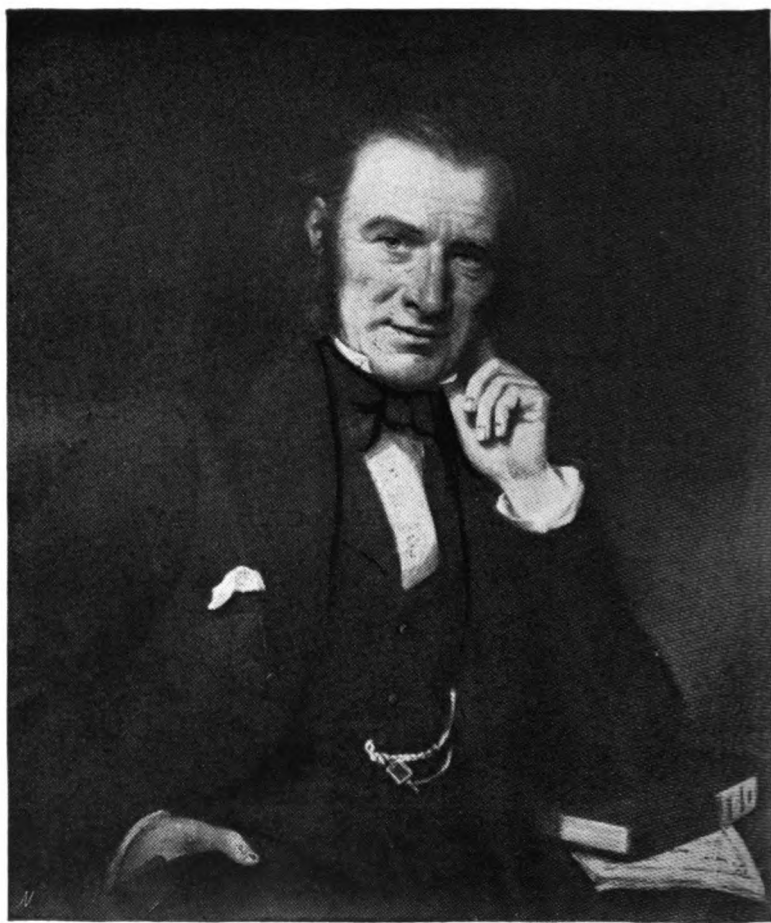
"In the *tinea tonsurans* having little spore (the Gruby-Sabouraud disease) Dr. Sabouraud has for some time employed an ointment containing carbonate of potash (pure), 5 to 10 grammes; distilled water and oil of sweet almonds, each 5 grammes; vaseline, 40 grammes. This is applied in alternation, with tincture of iodine, in the following manner—"The ointment is left on for twenty-four hours; the head is then washed with soap and plenty of water, and the iodine then applied. As soon as the layer of iodine is dry the ointment is reapplied for twenty-four hours, and so forth. In this way the diseased areas are cured with relative ease.

"At the present moment Dr. Sabouraud prefers the following procedure, of which he has given me the formula, which I copy literally:—(1.) Each night the diseased plaque is entirely covered with a tampon of absorbent cotton, wet in the following solution:—Chloride of lime, 15 grammes; water, 300 grammes (shake before using and dilute one-half with water); cover with a piece of caoutchouc to keep the dressing in place. (2.) The following day wash with soap and cover with a piece of diachylon plaster. (3.) Twice a week apply tincture of iodine to all the plaques.

In the final stages of the tinea, when there are only a few hairs left in each plaque, which seem to resist all ordinary procedures, Dr. Sabouraud thinks we are authorized in destroying them directly, either with the croton-oil pencil or by electrolysis. These views are equally entertained by Dr. Wickham."—(*Journal of Cutaneous and Genito-Urinary Diseases*, October, 1894.)

Books, Pamphlets, &c., Received.

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- Transactions of the Pathological Society of London. Vol. XLV. London: Smith, Elder & Co. 1894.
- Elementary Practical Bacteriology, by A. A. Kanthack, M.D., and J. H. Drysdale, M.B. London: Macmillan & Co. 1895.
- Transactions of the Royal Academy of Ireland. Vol. XII. Edited by Wm. Thomson, M.B., F.R.C.S. Dublin: Fannin & Co. 1894.
- A Practical Treatise on Diphtheria and its Successful Treatment, by Brownlow R. Martin, A.B., M.B. Second Edition. London: Baillière, Tindall & Cox. 1895. (2s.)
- The Medical Annual and Practitioners' Index. 1895. Thirteenth Year. Bristol: John Wright & Co. (7s. 6d.)
- Obstetric Surgery, by Egbert H. Graudin, M.D., and George W. Jarman, M.D. Philadelphia: The F. A. Davis Co. London: F. J. Rebman. 1895. (14s.)
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- Text Book of Diseases of the Kidneys and Urinary Organs, by Professor Fürbringer. Translated by W. H. Gilbert, M.D. London: H. K. Lewis. 1895. (7s. 6d.)
- Indigestion; an Introduction to the Study of the Diseases of the Stomach, by George Herschell, M.D. London: Baillière, Tindall & Cox. 1895.
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- Dissections Illustrated, by C. Gordon Brodie, F.R.C.S. Part IV. London: Whittaker & Co. (10s.)
- An Anatomical Dissertation upon the Movement of the Heart and Blood in Animals, by William Harvey, M.D. Privately reproduced in facsimile from the Original Edition printed at Franckfort-on-the-Maine in the year 1628, with a Translation and Memoir, for G. Moreton, 42 Burgate Street, Canterbury. 1894.



JOHN REID, SURGEON, GLASGOW.

THE
GLASGOW MEDICAL JOURNAL.

No. V. MAY, 1895.

ORIGINAL ARTICLES.

JOHN REID, SURGEON, GLASGOW:

A Biographical Sketch of the Surgeon in whose memory was founded "The John Reid Prize," open to all Medical Students of Glasgow.

By JOHN LINDSAY STEVEN, M.D.

JOHN REID, L.F.P.S.G., died on 7th December, 1881. In 1882 his sister, Miss Mary Reid, founded in his memory "THE JOHN REID PRIZE," of the annual value of about £25.¹ This prize has already been of material benefit to a number of the students of the Glasgow Medical School, and has stimulated many to do good original work in the hope of carrying it off. During the past few years, from my official position, I have been one of the trustees of the prize, and I have been surprised to find that no biographical sketch of John Reid has yet appeared. No apology, therefore, is necessary, even at this late period, for placing on record some short account of the life and work of the man in whose memory this prize was founded. But apart from this very obvious reason, I have also a strong personal reason for not letting the memory of this man entirely lapse. Reid died shortly after I commenced practice, and from my earliest years I had known him well as the trusted medical adviser of our family. His sterling

¹ See Appendix A.

honesty, his absolute fearlessness, his hatred of quackery and shams of all kinds, and his readiness to proclaim what he thought to be true in spite of all ridicule and all opposition, even his faults, his pugnacity, and his inability to break away from the traditions and dogmas of his youth, were qualities which were calculated, profoundly and permanently, to impress the mind of a young man who had the privilege of being admitted to a considerable degree of his intimacy. I have known no more upright man than John Reid.

BIRTH AND FAMILY HISTORY.

John Reid was born in Hutchesontown, Glasgow, on the 11th March, 1809. His father was Andrew Reid, a joiner and cabinet-maker, whose place of business, according to an old Glasgow Directory, was situated at 43 Thistle Street, S.S. His mother was Margaret Shaw. She came of a family well known in the Hutchesontown district of Glasgow, and she died in 1852 at the advanced age of 81. Andrew Reid died, aged 75, in 1840, and was able to leave his surviving children, John and three daughters, a modest fortune, on the proceeds of which the sisters and their mother were able to live in comfort. None of the sisters married, and Mary became the housekeeper and life-long companion of her bachelor brother John.

THE STUDENT OF MEDICINE, 1828-1833.

Before entering upon the study of medicine, Reid served his apprenticeship as a cabinet-maker with his father, and in my possession is a substantial mahogany consulting table, given me by Miss Reid, which had served her brother during his whole professional life, and had been made with his own hands. In 1828, at the age of 19, he entered as a student of medicine at Glasgow, by enrolling himself in the class of Dr. William Thomson, who taught anatomy and surgery at the Anatomical Theatre, College Street, a school which had previously been the scene of the labours of John and Allan Burns, and of Granville Sharp Pattison. The following year Reid entered at the University, and during the remainder of his course he pursued his studies either at the University, or at the Portland Street School of Medicine, a voluntary association of medical teachers which achieved considerable success, and lasted from about 1828 to 1843 or 1844. Clinical

study in the wards of the Royal Infirmary was commenced in May, 1831, and was continued till May, 1833. In the University, Reid studied under Professors Jeffray, Thomas Thomson, John Burns, and John Towers. Of his extra-mural teachers, perhaps the best known were William Weir, afterwards President of the Faculty of Physicians and Surgeons, William Davidson, who attained some celebrity as a writer on diet and pharmacology, William Auchincloss, J. Balmanno, and John Macfarlane, afterwards Professor of Medicine in the University, whom Dr. W. T. Gairdner succeeded in 1862. On the 1st April, 1833, John Reid received the diploma of the Faculty of Physicians and Surgeons of Glasgow. In those days at the Faculty, in addition to the oral examination, the candidates had to write an essay or thesis on a subject prescribed by the examiners. The subject given to Reid was "Gangrene." The scroll of the essay he wrote has come into my hands, along with a number of his papers, and it is not without a sense of grim humour that one records the fact that this scroll of an essay on mortification was written on the backs and fly-leaves of a number of lithographed funeral letters, which had been addressed at various times to his father and himself.

REMINISCENCES OF STUDENT LIFE.

A few of Reid's reminiscences of his student days in Glasgow may not be without interest to us, now well on in the last decade of the nineteenth century. The reminiscences which I now record were related to me by Reid himself whilst I was a student of medicine, and they have always been treasured up in my mind as something which personally connected me with the Glasgow Medical School of sixty years since.

Of his old teacher of Anatomy and Surgery, William Thomson,¹ Reid ever retained a loving regard, and he often spoke to me about him. I was more than surprised, then, to find, when I came to enquire about Thomson at the Faculty, that it was not even known that there had been a teacher of anatomy of this name. All the information I could obtain from Mr. Alexander Duncan, the accomplished Secretary of the Faculty, was a note of the date of his admission as a

¹ See Appendix B (p. 334), which gives reproductions of Dr. William Thomson's class tickets. They are not absolutely *fac-simile*, but are as nearly so as the types at present in use will allow.

Fellow (or a Member as it was then denominated) and of his death. It was not even known that he had been a successful extra-mural Lecturer on Anatomy and Surgery. From a Post Office Directory of the time I learned that he lectured in the Anatomical Theatre, College Street. Reid's recollections are then of some interest as a slight contribution to the history of the Medical School of Glasgow.

It was, in 1828, still the period of the "resurrectionists," though happily near its close,¹ and the Irish porter at Thomson's "Public Dissecting Room" combined with his official duties those of a body-lifter. Reid dissected with Thomson during three whole sessions, and often the needful supply of material for the dissecting room was very difficult to obtain. One winter, Christmas had passed, no subject could be obtained, and the lecturer was drearily spinning out the time on the dry bones and some wet preparations. Reid could remember an evening when the porter arrived with the long-wished for subject in a sack, on his back, and with a blunderbuss in his hand, which he had thought it right, and probably safe, to remove from the graveyard as well as the corpse.

In these days the dissecting rooms of the city were regularly searched, under warrants granted by the sheriff, for missing bodies, and there was nothing that Dr. Thomson was more nervous about than an official search of his premises. So well was this nervous dread known to his pupils, that, whenever they wanted a night off from lecture, they played upon it. "Whenever," said old John Reid to me, listening with greedy ears to the stories of his youth, "we wanted a night off for the theatre, we gave the Irish porter a sixpence, and told him to come in when the lecture had commenced, and tell the doctor that there was a sheriff's search going on at the College." The effect of the announcement was that Dr. Thomson incontinently dismissed his class, suddenly remembering an important engagement.

Reid never personally attended a resurrection, though he had often been invited to do so. He once, however, had experience of a search by the sheriff's officers. The story he told me of the circumstance was this. He was engaged late one night, in the dissecting room, preparing, as the class prosector, a dissection for the next day's lecture. There was no one with him in the rooms at the time, except a little boy, the son of the Irish porter. A loud knock at the door

¹ Warburton's "Act for Regulating Schools of Anatomy" did not come in force till 1833, the year in which Reid obtained his diploma.

announced the arrival of the sheriff's men. Reid, on learning the object of his untimely visitors, endeavoured to temporize, and to persuade them to return when Dr. Thomson was present. It was of no use, and a violent threat to break in the door led to its being promptly thrown open. The men evidently did not like their work. They examined the rooms gingerly, the prosecutor taking care to direct their attention to the fact that the bodies in the dissecting room had been there for a very long time. At length they were content. Reid, full of anxiety to give them every facility, expressed the hope that they were satisfied that what they were in search of was not there. The only reply vouchsafed to this polite remark was a rough rejoinder that they were satisfied this was a d—d stinking hole. The body they were in search of was carefully concealed in a secret recess behind one of the window shutters.

Reid, while a student of medicine in the University of Glasgow, was enrolled a member of the Glasgow Medico-Chirurgical Society, and no recollection of his student days gave him greater pleasure than this connection. The Society at this time granted a diploma to those of its members who had distinguished themselves by reading papers and taking part in its debates. Reid had the honour of being awarded this diploma, a document of which he was much prouder than of his licence to practise.¹ From the diploma, which was written in Latin on a sheet of parchment, to which, by a blue ribbon, was attached an imposing seal carefully encased in a tin box, we learn that the Glasgow Medico-Chirurgical Society was constituted in the year 1802, and confirmed by the authority of the *Senatus Academicus*. The essays which Reid read before the Society have come into my possession, and the titles of these may be recorded, as showing the kind of subjects which were discussed by the Glasgow students of these days. The titles are as follows:—(1) "An Essay on Delirium Tremens;" (2) "An Essay on Poisons;" (3) "Ought Tobacco to be used in Cases of Strangulated Hernia in persons unaccustomed to its use?" (4) "On Morbus Coxarius;" (5) "Should Permanent Stricture of the Urethra be Treated on the principle of Dilatation?" (6) "Does the Placenta consist of a Maternal and a Fœtal Portion?"

I have read all the essays, and they show that, in his younger days, Reid betrayed a readiness to embrace and investigate new doctrines and experiments, which, unfortunately, was not so characteristic of his later years. The

¹ See Appendix C.

essay on "The Placenta" is of special interest, as dealing with a subject which was then being much discussed by Dr. Robert Lee, of London (afterwards appointed Professor of Midwifery in Glasgow, an appointment which he never took up), and Professor John Burns, of Glasgow, as to whether the placenta consisted only of a foetal or of a foetal and maternal portion. Lee held the former and Burns the latter opinion. Reid supported Lee in his arguments in favour of the new doctrine, and gives a graphic description of an injection of the uterus which Burns performed before his class to prove his contention. The experiment, in Reid's opinion at least, was not altogether successful, and the essayist thus describes the chagrin of the well-known and popular Professor of Surgery: "His physiognomy and ejaculations betrayed his sentiments, and I verily believe that if there had been a large enough uterus at hand—say one of plaster of Paris—he would have jumped into it, in order that he might be 'born again' before embracing the new doctrine."

Of his surgical teachers Reid had the highest opinion of the diagnostic powers and operative skill of Mr. Auchincloss, whom he regarded as superior to all his colleagues as a practical surgeon.

PRACTICE IN MARKINCH, 1833–45.

Shortly after obtaining his diploma Reid settled in practice in Markinch, a village of some local celebrity in Fifeshire. It is probable that his selection of this comparatively distant sphere of labour was determined by the fact that he had a cousin, Mr. A. Reid, in practice in the neighbouring town of Kirkcaldy. Reid remained in Markinch for twelve years, and attained considerable celebrity as a general practitioner. He had frequent consultations with the leading Edinburgh physicians and surgeons; among them, with the famous Dr. Abercrombie. It was always a matter of regret with him that he happened to be from home one day when the great Edinburgh physician, passing through the village, called for him at his house on the "School Brae." The autograph written by Abercrombie on a slip of paper instead of a calling card was carefully treasured by Reid, and was afterwards inserted by him opposite the title-page of his copy of that gentleman's well-known work on the *Diseases of the Stomach*.

Amidst the multifarious duties of country practice, time was found for literary work; and in 1841 he published a book entitled *The Philosophy of Death; or, a General Medical*

and *Statistical Treatise on the Nature and Causes of Human Mortality*. On the title-page appear the following sentences:

"Nascentes morimur, finisque ab origine pendet."

"Being born we die, and our end depends upon our origin."

This work contains much valuable statistical information upon the different causes of death, especially as regards Glasgow, and the author quotes largely from the writings of Dr. Robert Cowan, the father of Professor John B. Cowan. The Malthusian theory is exhaustively criticised, and it is evident that the doctrines of Malthus did not commend themselves to the practical mind of Reid.

I have also found among his papers the MS. of a course of popular lectures on Chemistry which he delivered in Markinch in 1835. To this period also we may attribute a fragment which seems to indicate that he had projected a medical novel somewhat after the style of Smollett. The hero was Ripelas Ramsden, the son of a village apothecary, who ran away from home to push his fortune in London. The fragment contains a racy account of the journey to London, detailing the adventures of the hero at a village inn, introducing the usual knights of the road, and, travelling with her father, a charming young lady, who touched the susceptible heart of the errant Ripelas. But the MS. ends with the arrival of Ramsden, penniless and sick at heart, in the bustling streets of London, and here we lose sight of him for ever.

LIFE IN GLASGOW, 1845-1881.

Reid left Fife in 1845, and settled in Glasgow, where he spent the remaining 36 years of his life as a general practitioner. He lived first at 58 North Hanover Street, and afterwards at 150 Renfrew Street. He had consulting rooms at 10 Sauchiehall Street and in George Street; these, however, he gave up many years before his death.

He was best known to the medical profession of Glasgow as an active and faithful member of the Medico-Chirurgical Society, and in the minutes of this learned body his name constantly appears.

The Medico-Chirurgical Society of Glasgow was founded on the 27th June, 1844, with Professor Thomas Thomson as first president. John Reid was admitted a member on the 10th March, 1846, on the same day as Dr. Newman of the Royal Navy, father of our well-known surgeon, Dr. David Newman.

It is interesting to note that the paper read upon this occasion was on the structure of the placenta, by Dr. Alexander Maxwell Adams. The conclusion arrived at was that it was a purely foetal structure. During his long connection with the Society, Reid served on the Council for two periods—viz., in 1852 and in 1860—and as vice-president from 1873-75. He read a number of papers, and it was characteristic that he preferred to communicate fatal cases in which he had had the opportunity of having a *post-mortem* examination. The communication which seems to have given rise to the greatest amount of discussion was that "On the Alternative Treatment of Fever," read to the Society on the 13th April, 1847, and afterwards published in the *Glasgow Medical Journal*, 1855, vol. iii, p. 155. The minute bears that the paper "gave rise to a very animated discussion, the greater number of the members deprecating the practice recommended by the essayist." In any public or political business undertaken by the Society, we always find him playing a prominent part. He moved the adoption of the Council's report in a famous case of alleged plagiarism. He initiated a rule stopping the payment of annual subscriptions after a given number of years. He objected to the paying away of money without due notice, when in 1853 the Society came to the help of the *Glasgow Medical Journal* with a donation of £50. He brought before the notice of the Society the wrongous dismissal from his office of Mr. Joseph Henderson, surgeon, by the Parochial Board of Fordoun, in Forfarshire, and inaugurated a movement which led to Mr Henderson being reponed. In the opposition to Sir William Dunbar's Death Registration Act, John Reid was one of the foremost leaders. In its long list of members the Glasgow Medico-Chirurgical Society has had none more loyal and more devoted to its interests than John Reid.

"THE GLASGOW MEDICAL EXAMINER."

In 1869 Reid came prominently before the medical public of Glasgow as editor of the *Glasgow Medical Examiner*. This journal appeared at somewhat irregular intervals during the years 1869-70-71, when it was issued, bound, as the second volume of the *Glasgow Medical Examiner*. Reid's periodical was intended to be a resuscitation of *Glen's Examiner* which was published as a monthly journal in 1831-32. J. P. Glen lived at 78 Saltmarket and had his surgery at 15 St. Andrew

Street. He started his journal as a means of allowing the public discussion of medical politics with special reference to the reform of the Faculty of Physicians and Surgeons. He was specially concerned with the claim of the Faculty to levy entrance "fynes" upon surgeons practising within their bounds; with their refusal to recognise the certificates of lecturers who were not Members of the Faculty—the Members being then equivalent to the Fellows of the present day; and with the manner in which the examinations for licence were conducted. His articles are full of interest as regards the history of the Faculty, and he was by no means particular as to the language in which he clothed his opinions. He was entirely fearless in his exposure of what he believed to be the tyranny of the Corporation then housed in St. Enoch's Square.

Reid was a student when this journal was being published, and he used to say that his admiration for the man who dared to attack the authorities of the Faculty was so great that he often stood outside the window of the little surgery in St. Andrew Street, peering over the blind to catch a glimpse of the plucky editor of the *Examiner* behind it. Forty years afterwards the admiring student of 1831 edited the second volume of the *Examiner*. It is right to note, however, that Reid's volume, in strict accuracy, should have been entitled the third, as although Glen's journal was ultimately published as one book, it contains the first volume and all that was published of the second volume of the original *Examiner*. The resuscitated *Examiner* was also an organ of reform, but the subject matter dealt with in its pages was different from that discussed by Glen. Reid concerned himself chiefly with what he considered to be the abuses of specialism, special hospitals and medical advertising. He printed articles on the sanitary aspects of the city and on the antiseptic system, and he criticised freely the different medical appointments that were made to public offices and hospitals. In the expression of his opinions he was absolutely without fear, even more so than Glen, and often, it must be admitted, rude and perhaps somewhat vulgar in the style he adopted. He was never afraid to mention by name the men and the systems against whom his indignation burned, and his journal, with its bright yellow cover and pungent matter, was appropriately nick-named the "mustard plaster." A journal of this kind was bound to give offence in high quarters, and within the Medico-Chirurgical Society the influence against it was successful in gaining the refusal of the manuscript reports of the Society's proceedings

for publication in its pages, although only by a majority of five in a meeting at which forty-five members recorded their votes, for and against. It is told of the publisher that he was continually afraid of being proceeded against for libel, but of this the editor had no fear. Indeed, a rumour was current in certain circles of the profession that Reid had conveyed all his property, personal and heritable, over to his sister, in order that he might write his articles with a free hand. That this rumour was absolutely untrue I know well, for he died practically intestate, the only arrangements he had made for the disposal of his estate being a note on half a sheet of letter paper, stating that he willed all his property, amounting to £7,000 or £8,000, to go to his surviving sister, Mary. But for this note much of it might have gone to his heir-at-law—a cousin in America. Reid was quite ready at all times to meet any of the men he criticised in the law courts, and it is perhaps not without significance that he was never asked to do so. In the pages of the *Examiner* we see Reid at his worst and at his best—at his worst, in his utter inability to see any good in the antiseptic methods of surgical procedure or the germ theory of disease generally, and in his tenacious clinging to the effete dogmas of a humoral pathology; at his best, in his manly protest against shams and quackery and everything that was likely to take from the dignity of the profession he loved, and in the active faithful practice of which he may be said to have died.

PRIVATE LIFE.

Reid's private life was humble and unassuming to a degree. By his patients he was much esteemed, and great reliance was placed upon his advice and skill. Penurious, even to miserliness, in all that concerned himself or his personal comfort, he was capable of a generosity of action towards others which certainly surprised those who knew him least, and judged of him merely from the somewhat unpromising appearance of his outer man. Not long ago a well known practitioner, now well up in the ranks of the older members of the profession in Glasgow, related to me, with expressions of a sincere gratitude, how he had been most generously befriended by Reid during the struggles of his early professional life. One of Reid's patients, a well-known builder in Glasgow, died bankrupt. On his death-bed he had told the latter that he had appointed him one of his trustees, and implored him to do his best to save something out of the wreck of his

fortunes for the maintenance of his widow. The creditors raised an action in the Court of Session for the recovery of an insurance policy, which was regarded by Reid as a legitimate provision for the widow, to the possession of which they had no claim. The other trustees promptly refused to act, and Reid alone accepted office and responsibility. In the Outer House the judge found for Reid on behalf of the widow, and on appeal the Inner House reversed the decision of the Lord Ordinary. At his own risk and expense he at once appealed the widow's case to the House of Lords, and, after an anxious trial, succeeded in gaining a verdict in her favour, with expenses against the creditors. This was but one of many acts of unostentatious beneficence that were well enough known to his intimate friends, and totally out of keeping with the character of a man who could have stooped to avoid, by any dishonourable means, the legal responsibilities of his position as editor of the *Glasgow Medical Examiner*.

In November, 1881, he was in attendance upon a gentleman who had taken ill at his residence at the coast. This necessitated his going down the Clyde several times a week. In one of his journeys, on a cold, wet, and windy day, he got a chill which resulted in acute cystitis, complicating apparently some prostatic enlargement, and, after a comparatively short illness, he died worn out by his sufferings. He bore his illness with the endurance of a Stoic, and faced the last enemy with the same courage with which he had fought the battle of life. Indeed, his chief suffering at this dread time seems to have been caused by the contemplation of the hopeless sorrow of his life-long companion and devoted sister, Mary. He was buried in the Gorbals Burying-ground, on the South Side of Glasgow, in the same grave which held the remains of his father and mother and the members of their family who had died before him. His sister Mary, the last survivor of the family, was interred in the same place in October, 1889. The grave is situated in a shady corner near the entrance-gate of the cemetery, and is marked by an old-fashioned horizontal tombstone, on which may be read the names of the whole family.

As a practitioner, Reid was essentially of the old school, his whole practice and mode of thought being dominated by the doctrines prevailing at the beginning of the present century. A firm believer in the efficacy of drugs, he had little sympathy with the modern expectant methods of treatment, which he regarded as trifling with disease. The *vis*

medicatrix naturæ as a therapeutic principle in the treatment of a given case had scarcely any meaning for Reid. Amongst drugs he had great faith in the alterative effects of calomel, and used it with no unsparing hand. Until the day of his death he regularly bled at the arm in all his cases of acute pleurisy or pneumonia. Great indeed was his surprise when he learned that I had gone through my whole medical course without once having seen a patient bled at the arm, and hearty was his promise to take me to the first patient he was going to bleed; but the fulfilment of the promise was forestalled by death. He had little belief in the specificity of many of the continued fevers. Typhus and enteric fevers were not so much to him specific diseases as morbid febrile conditions which might be determined by a number of different adverse surroundings, or peculiar constitutional states, of the individual affected. The effect of contagion in producing disease was in his opinion greatly over-estimated; and so great was his belief in the protective efficacy of vaccination that I have heard him say he was quite willing to sleep in the bed that a small-pox patient had died in.

In person Reid was somewhat below the average height, of a thin, but wiry, and active frame. His features were strongly marked, of characteristically Scottish type, and indicative of keen active intelligence. His speech was clear and forcible, if latterly somewhat long-winded and dogmatic, and was liable to be interrupted at times by a somewhat hissing nasal inspiration and smack of the lips, an idiosyncrasy of expression as well known to his patients as to the members of the Medico-Chirurgical Society. In his later years he was apt to be garrulous at the meetings of this Society, and as he insisted upon speaking on almost every question at great length, it was found necessary to get a time-piece which chimed the ten minutes, chiefly, I am told, to remind Reid that his time was up.

Looking back now through a vista of nearly fifteen years, all the weaknesses of the man are forgotten in the remembrance of his transparent honesty, his marked benevolence, and his high ideals of the honour and dignity of the profession of medicine.

The photograph which is here reproduced was taken by my friend Dr. Charles Workman from the portrait preserved in the Faculty Hall, and gives a very faithful likeness of the subject of our sketch as he appeared in his later years.

APPENDIX A.
SCHEDULE SHOWING THE HISTORY OF THE "JOHN REID PRIZE" SINCE ITS INSTITUTION.

Year.	No. of Competitors.	Prizeman.	Remarks.	Title of Prize Essay.
1884	3	{ H. Lyon Smith, - £25	Awarded for two years.	.....
1887	1	{ Leonard Williams, £10	In recognition of	work done.]
1888	1	{ R. C. Wakefield, - £25	One year.	"Aneurisms of the Aorta."
		{ R. M. Buchanan, - £25	One year.	"The Absorption of Amyloid Material and the Amyloid Change in Hodgkin's Disease."
1890	2	{ L. R. Sutherland, - £25	Awarded for one year.	"A Case of Biliary Abscess of the Liver."
		{ G. Roy Fortune, - £5	In recognition of work done.	"A History of Aneurism, with special reference to Aortic Aneurisms: their Positions, Directions, Effects, and Probable Causes."
1892	1	...	Not awarded.	.....
1893	1	J. H. Teacher. - £25	One year.	"The Distribution of Amyloid Degeneration in a Case of Inherited Syphilis."
		{ J. W. Findlay, - £20	One year.	"A Research into the Histological Structure of the Olfactory Organ."
1894	3	{ T. A. Beadle, - £15	One year.	"The So-called Parasitic Protozoa of Cancer."
1895	1	Alex. MacLennan, - £10	In recognition of work done.	"Some New Methods of Purifying Artificial Salicylic Acid."

APPENDIX B.

LECTURES

ON

A N A T O M Y,**PHYSIOLOGY & PATHOLOGY,**

GLASGOW,

Session 18

Lectures

ON

THE PRINCIPLES,

AND

PRACTICE OF SURGERY.

BY

William Thomson, M.D.MEMBER OF THE PHYSICAL SOCIETY OF GUY'S HOSPITAL,
LONDON, AND OF THE FACULTY OF PHYSICIANS
AND SURGEONS, GLASGOW, &c.

BY

William Thomson, M.D.MEMBER OF THE PHYSICAL SOCIETY OF GUY'S HOSPITAL,
LONDON, AND OF THE FACULTY OF PHYSICIANS
AND SURGEONS, GLASGOW, &c.*I certify that**attended the above Course from*

GLASGOW, 18

*I certify that**attended the above Course from*

GLASGOW, 18

ADMIT

TO

DR. THOMSON'S
LECTURES ON PRACTICAL ANATOMY,

AND TO THE

Public Dissecting Room.

I certify that
attended the LECTURES *on* PRACTICAL ANATOMY, *and*
the DISSECTING ROOM, *from*

GLASGOW, *May,*

APPENDIX C.

Societas

Chir: Medica Glasguensis.

Anno Millesimo Octingentesimo Secundo constituta et Senatûs Academici autoritate confirmata omnibus ad quos haec pervenerint Salutem. Ingenium ornatissimumque virum JOANNEM REID numero nostro liberis Sociorum suffragiis adscriptum dum nobis interfuit; multaque praestantissimi ingenii animique ad optimum quodque parati exempla in medium protulisse, testamur.

Eum autem quippe cujus ingenii felicitis animique excellentis certiores facti sumus in omnium ad quos haec pervenerint gratiam commendamus. In quorum fidem has literas nostris manibus Societatisque Sigillo obsignatas discedenti perlibenter damus.

JAMES MONTGOMERIE, *Preses.*

LE BARON BOTSFORD, *Vice-Preses.*

J. M. RICHARDSON, *Secretarius.*

JOANNES BOAG, *Sigilli Custos.*

Datum

e

Collegio Glasguensi,

A.D. MDCCCXXXIII.

**ABSTRACT OF DISEASES TREATED IN WARDS Nos. 1,
2, AND 9 OF THE GLASGOW ROYAL INFIRMARY
DURING THE YEAR 1894, WITH DETAILS OF SOME
SEVERE CASES, &c.**

By JOHN DOUGALL, M.D., F.F.P.S.G.,

Professor of Materia Medica, St. Mungo's College, Glasgow; Physician and
Lecturer on Clinical Medicine, Glasgow Royal Infirmary.

The following table shows the diseases, number of males and females treated, deaths, and death-rates per cent:—

DISEASES.	Males.	Deaths.	Death- rates per cent.	Females.	Deaths.	Death- rates per cent.
Anchylosis of hip, . . .	1	...	...	...	...	...
Anæmia, . . . . .	...	...	...	5	...	...
Aneurysm,	3	3	100·0	...	...	...
Angina pectoris, . . .	2	1	50·0	3	...	...
Arthritis deformans, . .	1	...	...	...	...	...
Ascitis,	3	...	...	2	...	...
Asthma,	2	...	...	2	...	...
Bright's disease, . . .	18	2	11·0	15	2	13·0
Bronchiectasis,	1	...	...	...	...	...
Bronchitis,	45	4	9·0	16	...	...
Cancer of larynx, . . .	1	...	...	...	...	...
Do. stomach,	4	1	25·0	...	...	...
Do. liver, . . . . .	...	...	...	1	1	100·0
Cerebral hæmorrhage, . .	4	2	50·0	3	1	33·0
Chorea,	2	...	...	2	...	...
Cirrhosis of liver, . . .	3	1	33·0	1	...	...
Collapse of lung, . . .	2	...	...	1	...	...
Cystitis,	3	...	...	3	...	...
Diabetes mellitus, . . .	4	...	...	1	...	...
Do. insipidus,	1	...	...	...	...	...
Dilated stomach, . . .	1	...	...	2	...	...
Eczema,	2	...	...	3	...	...
Empyema,	1	...	...	...	...	...
Emphysema,	2	...	...	1	...	...
Enteric fever,	3	1	33·0	1	...	...
Epilepsy,	4	1	25·0	2	...	...
Gastritis,	15	1	6·0	12	...	...
Gumma of brain, . . . .	...	...	...	1	...	...
Hæmaturia,	3	...	...	1	1	100·0
Headache,	1	...	...	...	...	...
Hepatitis,	1	...	...	...	...	...
Hypochondriasis, . . .	2	...	...	...	...	...
Hysteria, . . . . .	...	...	...	4	...	...
Incontinence of urine, .	...	...	...	1	...	...
Influenza, . . . . .	...	...	...	2	...	...
Insanity,	1	...	...	...	...	...

DISEASES.	Males.	Deaths.	Death-rates per cent.	Females.	Deaths.	Death-rates per cent.
Intestinal catarrh, . . .	2	1	50·0	2	...	...
Jaundice,	4	...	...	1	...	...
Locomotor ataxy, . . .	2	1	50·0	...	...	...
Lumbago,	3	...	...	...	...	...
Lupus,	1	...	...	...	...	...
Nephritis, acuta, . . .	7	...	...	7	2	28·0
Neuritis,	5	...	...	1	...	...
Obstruction of bowel, . .	1	1	100·0	...	...	...
Omental tumour, . . .	1	...	...	...	...	...
Paralysis, of insane, . .	1	1	100·0	...	...	...
Do., spinal,	1	...	...	...	...	...
Do., facial,	2	...	...	...	...	...
Do., zinc workers, . . .	1	...	...	...	...	...
Do., bulbar,	1	...	...	...	...	...
Pernicious anæmia, . . .	...	...	...	2	2	100·0
Pericarditis,	1	...	...	...	...	...
Pelvic tumour, . . . . .	...	...	...	2	...	...
Phthisis,	31	6	19·0	13	2	15
Pityriasis rubra acuta, . .	1	...	...	...	...	...
Pleurisy,	8	...	...	3	...	...
Pleurodynia,	4	...	...	2	...	...
Pneumonia,	20	7	35·0	4	1	25·0
Poisoning, alcoholic, . .	4	1	25·0	...	...	...
Do., meth. spirits, . . .	1	...	...	...	...	...
Do., ptomaine, . . . . .	...	...	...	1	1	100·0
Poliomyelitis, . . . . .	...	...	...	1	...	...
Psoriasis,	2	...	...	1	...	...
Purpura,	3	...	...	...	...	...
Pyrexia,	2	...	...	2	...	...
Renal calculus, . . . . .	...	...	...	1	...	...
Rheumatism,	28	...	...	12	...	...
Sciatica,	13	...	...	2	...	...
Spinal sclerosis,	11	...	...	1	...	...
Syphilitic neuralgia, . .	1	...	...	...	...	...
Tubercular meningitis, . .	2	1	50·0	...	...	...
Do., peritonitis,	1	...	...	...	...	...
Tabes mesenterica, . . .	1	1	100·0	1	...	...
Tumour of abdomen, . . .	1	...	...	1	...	...
Do., bladder,	1	...	...	...	...	...
Tonsillitis,	1	...	...	...	...	...
Uterine carcinoma, . . .	...	...	...	3	...	...
Valvular disease of heart,	19	2	10·0	24	3	12·0

The total males treated were 321, of whom 39 died, being a death-rate of 12·1 per cent. The total females treated were 175, of whom 16 died, being a death-rate of 9·1 per cent. The total patients treated were 496, and the total deaths 55, showing an average mortality of 11·0 per cent. In the Annual Report of the Infirmary for 1894, the total male mortality of all the medical wards is stated as 15·1; the total female mortality as 10·7; and the entire mortality as 13·4

per cent. Hence my male mortality is 3·0; my female mortality, 1·6; and my entire mortality 2·4 per cent less than the entire mortality of the whole medical wards.

The quantities of stimulants given during the year were—Brandy, nearly all as egg flip, 546 oz., or 1·1 oz. per patient; whisky, 1,948 oz., or 3·7 oz. per patient; port and champagne, of each 48 oz., or 0·48 oz. of each per patient; total, 2,590 oz., being an average of 5·2 oz. of stimulants per patient.

The following table gives the names and cases treated, including male and female, of some more common diseases, with the number of deaths and death-rate per cent:—

DISEASES.	Cases Treated.	Number of Deaths.	Death-rate per cent.
Bright's disease,	32	4	12·0
Bronchitis,	61	4	6·5
Gastritis,	27	1	3·7
Phthisis,	44	8	18·0
Pneumonia,	24	8	33·3
Rheumatism,	40	...	...
Valvular disease of heart, . . .	43	5	11·6

Ten *post-mortem* examinations were made by the Pathologist and his assistants, with the following results:—

FEMALE (1).

J. M'G.—Heart enlarged, flabby. Right lung adherent by old pleuritic adhesions; at lower part localised accumulation of fibrin as from pleuritic inflammation. Lower lobe extremely congested, and towards upper lobe apparent grey hepatitis. Left lung adherent and hyperæmic. Kidneys have the character of tubercular nephritis. Myomata under peritoneum over uterus.

MALES (9).

J. M.—Consolidation of right lung. Solid pleuritic effusion of both sides. Œdema of left lung. Globular thrombi in right ventricle of heart. Infarction of spleen. Fatty liver. Congestion of kidney.

G. K.—Sclerosis of posterior columns of spinal cord. Catarrhal pneumonia. Constipation. Distention of urinary bladder.

F. W.—Arteries of brain very atheromatous and tortuous. A clot of blood in left anterior lobe almost the size of a walnut, around which there is moderate softening of brain

tissue. No blood in ventricles nor on surface of brain. Ventricles contain a moderate amount of clear serum. Corpus striatum healthy.

W. M'N.—Extensive emaciation. Almost total absence of subcutaneous fat. Heart normal. Lungs consolidated in middle region, not of croupous type, but of irregular nodules such as seen in a gangrenous condition of the lung, and frequently also in cancerous affections of the œsophagus. Absence of adipose tissue of omentum and mesentery. A fusiform soft swelling of gullet, due to thickening of muscular coat, and causing slight obstruction.

J. C.—Aneurysm of ascending aorta opening into pulmonary artery. Dilatation of heart. Congestion of kidneys, liver, and spleen.

J. D.—Large aneurysm. See detailed case.

P. C.—Enteric fever. See detailed case.

W. P.—Large aneurysm. See detailed case.

J. B.—Obstruction of bowels. See detailed case.

Amongst the more severe cases were the following:—

P. C., æt. 29, sailor, native of Bergen, was admitted on 3rd February in a very exhausted state as a case of rheumatic fever. He had been on board a ship which sailed from Jamaica for Glasgow. The voyage was very protracted; adverse gales carried the vessel to the north-west coast of Scotland, where they sought shelter in a bay which was seen running into the land. Here the anchors were cast, but they dragged, and eventually the ship went on a rock. Patient had been ill for some days previous to this, and was now quite unfit for duty. He was accordingly taken ashore to see a doctor, and they now found that they were in Dunvegan Bay, Skye. The doctor, according to the captain's statement to me, pronounced the case to be rheumatism, for which patient was treated during a few days on shore. The ship again getting afloat, he was brought to Glasgow, and at once sent to the Infirmary. On admission, he was semi-comatose, the features shrunk, and extremely anæmic; pulse almost gone; temperature 101° to 103°; respiration slow and shallow; copious pea-soup stools mixed with blood, of which he passed 80 fluid oz. in first twenty-four hours after admission; great number of rose-coloured spots over abdomen; spleen enlarged; pupils dilated; low, incoherent muttering. He was put on milk diet and 10 oz. brandy in twenty-four hours, but died on the third day after admission.

A *post-mortem* examination revealed pleural adhesions,

enlarged spleen, extensive hæmorrhagic ulceration of Peyer's patches, and follicles, with numerous hæmorrhagic foci and ulcers near the cæcum and on colon.

That this was a most virulent case of enteric fever both the symptoms and *post-mortem* examination proved. It seems to have originated *de novo*, as the captain told me that the rest of his crew were quite healthy, and patient was in the same state when taken ashore to the doctor as when brought back to the ship. Believing the captain's statement of the doctor's diagnosis, I did not communicate with the latter; but it looks possible that the disease was contracted on shore, and developed after the ship left for Glasgow, seeing there is so marked a difference between the symptoms of rheumatism and enteric fever. Patient would have been sent to Belvidere, but was too weak for removal.

W. P., æt. 40, plasterer, admitted 8th February, complaining of pain in back and indigestion. Is of very intemperate habits. Present illness began two years ago with pain in cardiac region, for which he took whisky. This for a time relieved him, but latterly lost its effect and he had to lay up. Temperature normal; teeth bad; slight thirst; mouth dry; no sensation of hunger. When swallowing food he feels obstruction near stomach; can only swallow liquids; after food feels heavy and a pain in back; bowels costive; stomach a little dilated. Has slight pain in cardiac region; but some months ago it was so bad that it made him faint; pain radiates downwards and to the back. Has paroxysms of palpitation at night which prevent sleep and cause great fear; dyspnœa is severe on slight exertion. For past eighteen months, when stooping over a basin to wash himself, he has felt severe pain and weakness in his back. Cardiac dulness is increased to left side, and there is comparative dulness on left upper part of chest; second cardiac sound is sharply accentuated. Arterial walls are slightly atheromatous and tortuous; the blood in radial artery is not great, but the tension is rather high; pulse regular, about 70 to 80; left radial pulse is sensibly later than the right. On his back there is a swelling which has its upper border on a line with the spinous process of the second dorsal vertebra, and its base on a level with the spinous process of the sixth. Its lateral extension is greatest at the level of the fourth dorsal spine, from which it extends outwards $4\frac{1}{2}$ inches. The swelling is pulsatile and expansile, which can be seen on inspection. Palpation confirms above, but gives no evidence

of any thrill. Percussion shows a corresponding area of superficial dulness, while the deep dulness extends to fully an inch more inferiorly. Auscultation reveals no thrill, only a slightly accentuated second sound conducted to the swelling. Has a bad cough with harsh breathing, but almost no spit. Pupils equal; no change in disc nor in retina apparent. No paralysis of vocal cords, and laryngoscopic examination is negative. Other functions normal.

The case was diagnosed as aneurysm of the thoracic aorta. Rest in bed was enjoined and the following mixture ordered:—

R.—Pot. iodid.,	$\frac{1}{2}$ oz.
Tinct. aconiti,	1 dr.
Infus. gent. co., ad.	8 oz.—M.

Sig.—Half an ounce three times a day.

Treatment, however, did no good, the swelling increased both laterally and outwardly, and the pain in intensity. He could not rest on his back nor left side, and was very distressed, the least movement preventing sleep. Thirty grains of sulphonal procured him a slight dose, no more. Twenty days after admission he had exceptionally severe pain in the swelling and in left shoulder, also angina, which nitrite of amyl at once relieved. This relief, however, was transient. The hydrochlorate of morphina was next given in 30 minim doses, which eased the pain greatly. The swelling now measured 4 inches from above downwards, and 7 inches transversely. A colleague who saw it with me thought that the aneurysm had burst and was encysted; at that time, however, it had not burst, and was never encysted. He now began to vomit and cough blood, and his breathing became rapid and stertorous. He died on the thirty-third day after admission.

This form of aneurysm, although somewhat rare, is well known. Erichsen (*Science and Art of Surgery*) says, "When aneurysm springs from the *posterior wall of the descending aorta* (thoracic) a pulsating tumour may gradually develop itself to one side of the spine or under the scapula, commonly on the left side, and it may attain an excessive development, fully as large as the head, before the patient is destroyed by the rupture of the tumour externally."

A *post-mortem* examination was obtained, of which the following is an abstract from the Pathological Journal of the Infirmary:—"At the back of left shoulder is a large

fluctuant swelling. Right lung adherent; both lungs healthy. The swelling extends along upper part of aorta on both sides of the spinal column. At upper part this swelling is much more prominent on left side, while lower down it is more prominent on right side, and extends nearly to the diaphragm. On attempting to remove the swelling along with the aorta and heart, it is found to be a large aneurysm which had deeply eroded the bodies of the dorsal vertebræ from the second to the ninth inclusive. The third rib is completely eroded through; the fourth and sixth partially so, on left side. The aneurysm has also ulcerated through the œsophagus and through the trachea, close to its bifurcation. The right cardiac ventricle contains a large, nearly colourless clot; the left is empty. The stomach contains a large, moderately firm, red clot, which forms a very perfect cast of the organ. The intestines contain a large quantity of semi-digested blood. The liver and spleen are pale but healthy. The pancreas is healthy. The kidneys are of fair size, their capsules are easily removed, and on section they show healthy characters."

What caused this very large aneurysm it is difficult to say, but it was clearly of prolonged growth, as patient had complained of pain in the cardiac region for the past two years, in all likelihood due to the aneurysm. It is obvious that the severe pain he latterly felt in his back and left shoulder was due to the constant erosion by the aneurysm of the ribs and vertebræ, while the continuous rubbing and pressing of the aneurysm against the trachea and œsophagus will account for the dyspnœa and dysphagia. Eventually, the walls of both these tubes were worn through, and latterly the aneurysm itself burst at the points of erosion, and the blood poured into the trachea and œsophagus, hence the coughing and vomiting of blood, and the blood found in the stomach and intestines.

J. B., æt 51, fisherman, admitted 24th January, complaining of pain in bowels and vomiting after food during the previous ten days. Is a total abstainer; had rheumatic fever 20 years ago. Present illness began three weeks ago with a chill, and afterwards he had constipation with pain in bowels. Poultices were applied to abdomen, which relieved him for a time, but the pain returned, and so severely that he could scarcely stand. Temperature normal; lips and mouth dry; tongue red at edges, white-furred in centre. After taking food he has heartburn and pyrosis. Never vomited blood, but nearly always vomits after food. Bowels have not moved for three

days; never passed blood; micturates freely; urine normal. Abdomen much distended, and the small intestines form tense coils and ridges across the abdominal walls, the latter being somewhat sensitive, but not painful to palpation, except a limited part around the umbilicus. Percussion gives a tympanic note all over abdomen, except at right flank, where there is a decidedly dull area. Liver normal; spleen slightly enlarged. Examination of rectum reveals nothing unusual. Heart sounds normal; pulse 120, thready, soft, regular. Some rhonchi scattered through lungs, but otherwise they are normal. Had some opening medicine two nights ago, which has not acted. A large enema of warm water and soap was given and turpentine stupes applied over abdomen without effect. An enema of 4 oz. castor oil was next given, which brought away a little fæcal matter. He also had an enema of glycerine. However, he gradually became comatose and died in twenty-four hours after admission.

It was clear from my first examination of this patient that he could not live long, and that the cause of his illness was the dull area in the right iliac fossa. This, and the swollen small intestines, throwing the abdominal wall into deep corrugations, together with the persistent constipation, pointed to some serious block in the bowels, which, it was thought, might prove either perityphlytis or a malignant tumour.

A *post-mortem* examination was fortunately obtained, and revealed a large epitheliomatous growth in the cæcum, and adhering to the small intestines and right ureter, which was largely dilated above the point of adhesion.

J. D., æt. 55, labourer, admitted 11th October, complaining of pain in centre of chest and epigastrium. Until six months ago he enjoyed good health, when he began to feel a little pain in left hypochondrium. Some weeks after he fell against a plank, the end of which struck him on the sternum. In a few days he began to feel out of sorts and sick, with a pain in epigastrium. On admission he had difficulty in swallowing even milk, and any food which seemed to reach the stomach was soon vomited, the epigastric pain at the same time increasing in severity. Patient is very cachectic, his muscles are thin and flabby, and there is a depression at xiphoid process of sternum as if the latter had been fractured, and over this area tenderness on pressure. Breath sounds normal. The cardiac apex beat is in sixth intercostal space, half an inch to left of sternal border, and extends to nipple line; the valvular sounds are pure except a flapping action of

first sound. The abdominal walls are lax, the skin loose, no tumour detected. Pupils equal, radial pulses quiet, equal; sight, hearing, temperature, urine—normal.

My assistant tried to pass a bougie through the œsophagus, but it got caught about two-thirds down. Next day I myself attempted to pass a bougie into the stomach, but it was again obstructed at the same point. With a little gentle pressure, however, it passed into the stomach, and next day he said he had not been so free from pain for weeks; and, besides having beef peptonoids, he had swallowed and retained about 100 oz. of milk.

That I here had to deal with some obstruction of the œsophagus was obvious; but of what nature, after careful examination, could only be surmised. There could be no doubt, however, about the patient's very serious condition, and that he had not long to live. On the following day he was as bad as ever, and gradually died five days after admission.

A *post-mortem* examination revealed extensive pericarditis and fibrinous effusion. Large aneurysmal tumour of descending aorta obstructing the œsophagus, and penetrating its posterior wall. Another aneurysm at the junction of the transverse with the descending aorta.

The pericarditis and fibrinous effusion was doubtless the cause of the pain in the left hypochondrium from which he had suffered more or less during six months. It is now also clear that when I was pressing the bougie against, as it proved, the aneurysm in the œsophagus, I was incurring an unknown risk of rupturing it, and consequently having the patient dying at the time. Again, the fact that he retained milk after I had passed the bougie into his stomach shows that, in doing so, the aneurysm had been displaced from the œsophagus, at least for a time. Moreover, no blood was vomited previous to death, nor was the aneurysm found ruptured after it.

J. H., æt. 22, miner, admitted 14th April, complaining of great thirst and of passing large quantities of urine. His people are healthy, his habits temperate, his general surroundings at home and at work good. No bad gases nor much water in the mine where he works. Had inflammation of lungs about four years ago, also about two years ago. When a child he fell on a chamber-pot and cut his head behind and above right ear, where can still be felt a depression 3 inches long, running backwards and downwards from the

parietal eminence. A short time after a window fell on the bridge of his nose, fracturing the nasal bones.

He first noticed his present illness about two months ago—i.e., great thirst and polyuria—since which time he has become so weak that he had to stop working. Height, 5 ft. 7 in.; weight, 8 st. 4 lb. (says he weighed 9 st. 8 lb. three weeks ago?); development fair; no obvious morbid appearances other than deformed nose and scar on head; temperature normal. Urine, sp. gr. 1.05; passed 380 oz. first day of admission; no deposit, clear; no albumen, no sugar, no blood; urea 1 per cent; chlorides in excess. Respiratory and circulatory systems normal; appetite poor; thirst excessive; bowels costive; abdominal organs normal. All functions of the nervous system normal except sleeplessness, but this seems caused by his having to get up frequently to drink or to urinate. Skin normal; is slightly anæmic. Reproductive system seems normal. None of his family ever troubled like himself. Cannot say what made him ill; thinks it might be drinking the pit water, but none of his mates in the pit are similarly affected. Moreover, I examined the pit water, and found it free from organic matter, and containing the merest trace of iron and of lime. It was easily seen that this was a case of diabetes insipidus. I hence ordered him the following mixture, with which I had alone previously treated two such cases successfully:—

R.—Ext. ergotæ liq., 2 oz.
Tinct. fer. perchlor., 2 dr.
Infus. quassia, ad. 8 oz.

Sig.—Half an ounce three times per day.

He also had 8 pints of butter milk daily, the acidity of which he greatly relished.

This medicine was continued until 30th April without benefit, when he was ordered:—

R.—Tinct. belladon., 15 min.
Liq. mur. morph., } aa 8 min.—M.
Spt. chlorof., }

Sig.—To be taken every eight hours.

At the end of a month this mixture was stopped, there being no improvement in his condition, and the following substituted:—

R.—Ext. ergotæ liq., 1 dr.
Tinct. nucis vom., 10 min.—M.

Sig.—To be taken three times per day.

After three weeks, the result being the same as with the other medicines, this mixture was also stopped, and he was put on two fluid ounces aqua picis thrice daily. This consisted of a saturated aqueous solution of Stockholm tar, and seemed to do more good than any of the medicines he had got, as in three days after he had begun taking it he was drinking and micturating fully 100 oz. less fluid daily, and in two weeks about 200 oz. less, his digestion remaining undisturbed. He took this tar water during a month, at the end of which he had an acute attack of pityriasis, which faded whenever the water was stopped.

After being in the hospital for three months, he left in the following condition:—Weight on admission, 8 st. 4 lb.; on dismissal, 7 st. 9 lb. He drank daily on admission about 450 oz. fluids; on dismissal about 120 oz. During his first month in the hospital he drank 11,143 oz. of fluids (water and butter milk chiefly), equal to 69 gallons 5 pints, or fully $2\frac{1}{4}$ gallons daily; during his third month in the hospital he only drank 5,001 oz. of fluids, equal to 31 gallons and 2 pints, or fully a gallon daily.

On his admission, I enjoined both himself and the nurses to be particular in measuring and noting the quantities of fluids he swallowed and passed. I am satisfied that this was done as far as possible, and find that the entries on these heads, tabulated in special clinical sheets, number, for fluids taken and for urine passed, 192. Some earlier writers on this rather rare disease seem to have suspected that those affected by it passed more fluid than they swallowed—that, in fact, their systems manufactured water or imbibed it from the air. This idea was kept steadily in view during the whole time the patient was under treatment; and, curiously enough, the results seem to confirm the suspicions of these earlier observers. Summing up the various entries in the clinical sheets of fluids drank and urine passed during his three months' stay in hospital, the results are—

Fluids drank,	.	.	.	.	.	.	24,770 oz.
Urine passed,	.	.	.	.	.	.	28,740 „
							<hr/>
Excess of urine passed over fluids drank,							3,970 „

In other words, during treatment he drank 154 gallons 6 pints and 10 oz. fluids, while he passed 179 gallons and 5 pints of urine, being $2\frac{1}{4}$ gallons 6 pints and 10 oz. more urine than he drank of fluids, which, divided by 92—the number of

days he was under treatment—gives a daily excess of 43 oz., or 2 pints 3 oz. of urine over the fluids drank.

It may be said, and with some probability of truth, that the fluid in his porridge and soup could not be correctly estimated. On the other hand, however, the average large excess of urine passed, together with that lost at stool and water passing off as sweat and as vapour from the lungs, must to a great extent have counterbalanced the unmeasured fluid of the above foods. I have already mentioned that the tar water greatly diminished his thirst, but it seemed also to produce latterly a marked increase in the proportion of urine voided to that of fluids drank, as the following quantities, recorded during his last sixteen days' stay in the Infirmary, show:—

1894.	Fluids taken in 24 hours.	Urine Passed.	Sp. Gr.
July 1,	150 oz.	257 oz.	1·01
" 2,	145 "	251 "	1·03
" 3,	140 "	223 "	1·03
" 4,	135 "	232 "	1·03
" 5,	130 "	252 "	1·03
" 6,	120 "	238 "	1·04
" 7,	110 "	246 "	1·03
" 8,	105 "	249 "	1·05
" 9,	100 "	178 "	1·05
" 10,	90 "	191 "	1·05
" 11,	85 "	151 "	1·05
" 12,	85 "	191 "	1·05
" 13,	90 "	200 "	1·04
" 14,	100 "	230 "	1·04
" 15,	120 "	234 "	1·02
" 16,	125 "	243 "	1000

As regards the specific gravity of the urine, of 92 entries the highest was 1·06, the lowest that of water, and the average 1·03. On 7th August patient called at the Infirmary, and stated that he had gained 7 lbs. in weight, that he was more thirsty than when he left, and was drinking 500 oz. of fluid daily, which he measures; but the quantity of urine passed is not known.

On 7th April, 1895, is in same state.

J. K., æt. 39, boilermaker, was admitted 23rd November. A relation stated that a month ago patient was quite well and working, but soon after he had great shortness of breath and cough. Two weeks ago he was attacked with headache which

increased so much that he often cried with pain. Since the 20th November he has wandered mentally. He never drank heavily; had pleurisy twice; has never been strong. His father, two sisters, and one brother, died of consumption, and some of his children are tubercular. On admission he is very restless; talks incoherently to himself. When asked his name he gave it all right, but could not tell his trade, his age, or whether he was married. He is constantly pulling the bed clothes and trying to get out of bed; is rather emaciated; knee reflex normal on left side, but gone on right; plantar reflexes diminished; abdominal and epigastric reflexes could not be obtained; pupils contracted, slightly unequal; giving almost no response to light; lungs and heart normal; pulse slow, full, bounding; temperature 101 to 102·6. Passes dejections in bed; greyhound abdomen; no squinting; no vomiting; no convulsions.

Although tubercular meningitis is very rare at the age of 39, yet judging from the family history, and the symptoms in this case, I felt justified in pronouncing it that disease. In a few days he became quite unconscious; there was slight jerking of the left arm; grasping at imaginary objects; folding up and picking the bed clothes, with occasional Cheyne-Stokes breathing. On 1st December his pulse was 140; there was slight ptosis of right eye. He died next day. No *post-mortem* was obtained.

M. B., æt. 22, labourer, admitted 26th October, complaining of painful and frequent micturition and scaliness of his skin. Personal and family history good. His entire body is covered with a vivid erythematous blush of a week's duration, over which in most parts there is profuse desquamation, but no moisture. He cannot tell the cause of his illness, nor was he ever similarly affected. Alimentary and circulatory systems and temperature normal. He has intermittent hæmaturia and very frequent micturition, at the end of which there is acute pain in the bladder. There is a soft sore under the frænum five weeks old, and the inguinal glands are swollen, hard, and multiple. Urine acid; specific gravity 1·17, and when blood is absent it contains albumen, 1½ grains per ounce. He was put on the infusion of jaborandi, and the sore dressed with *lotio nigra* and iodoform. Six days after the redness of the skin was less intense, but he had not perspired, and the desquamation continued now all over the body, large sheets of skin being removed. On 30th October, the skin was

almost normal in colour except that of the face, but the desquamation went on. Urine is unchanged, micturition as frequent; soft sore nearly healed. He was now put on nitrohydrochloric acid and pareira brava, and some days after on cod liver oil with syrup of the hypophosphites. Ten days after pus and blood corpuscles were constantly present in the urine, a considerable quantity of blood being occasionally passed; urine as a rule is cloudy with pus and mucus. Desquamation is almost stopped over the body, but large masses of thick epidermis are being shed from the hands and feet, those from the latter forming dense felted casts of the parts. On 23rd November the skin was about normal, but the urinary trouble continued. He was now put on 10 grains ammonium benzoate thrice daily, and an iodoform bougie inserted into the urethra twice daily. On 7th December the bladder was being washed out with an aqueous solution, 1 in 100 of carbolic acid, and on the 20th the muco-pus, blood, and albumen having disappeared, he was discharged cured.

It almost appears as if the soft sore and the dermatitis in this complicated case were in the relation of cause and effect, the origin of the sore being confessed to, and the infection having preceded the skin trouble by four weeks. In classed syphilitic eruptions, however, no such skin affection is included; indeed, with soft sores there are no cutaneous eruptions at all, neither are there what was here—swollen, hard, and multiple inguinal glands.

It may be said in passing that the state of these glands indicate a hard and not a soft sore; but this view is confuted by the patient recovering without specific constitutional treatment. Again, the mucus, pus, and blood in the urine, together with the frequent painful micturition and pain above the pubes pointed to bladder trouble, which also began after the soft sore, and apparently so did the albuminuria, all of which very probably arose from the cause of the sore.

On the whole, therefore, it seems that the dermatitis, or as it may be called, pityriasis rubra acuta, was simply a complicating coincidence, the cause of which could not be known.

A CASE OF PERFORATION OF THE BOWEL BY A FISH BONE WHICH WAS REMOVED FROM AN INTRA-ABDOMINAL ABSCESS.¹

By A. ERNEST MAYLARD, B.S. LOND.,
Surgeon to Victoria Infirmary, &c.

M. D., aged 34, was admitted into the Victoria Infirmary under my care on 3rd July, 1894. He had been in the Infirmary on three previous occasions for pulmonary phthisis; he was admitted for a fourth time on 1st June, 1894, not, however, on this occasion for his lung trouble, but for pain which he complained of in his right inguinal region of two weeks' duration. On this latter occasion he was taken into a medical ward, and the following is the report of his condition at that time:—"There is a rounded tumour to be felt in the right inguinal region on a level with the anterior superior spine of the ilium, and about 2½ inches to the right of the middle line. It is tender on pressure, of firm consistence, and its limit can be palpated. The skin is freely movable over it."

During his five weeks' residence in the Medical Ward it is noted that he had never had a rigor, and that his temperature had not risen above 99°. His bowels had never troubled him, except that there was a tendency to looseness. The swelling gradually increased both in size and tenderness.

It being considered that the case was probably one of appendicitis with formation of abscess, the patient was transferred on 3rd July to Ward III, under my care.

3rd July.—*Extract from Surgical Ward Report by Dr. Brownlie.*—On examination of the abdomen a well marked swelling is observed over the upper part of the right inguinal region. The skin is somewhat tense, and of a pinkish-blue colour. It is tender all over, but more particularly so at its most prominent part, where there is a suspicion of fluctuation.

Operation.—11.30 A.M. on the same day, the patient being anæsthetised, a vertical incision was made over the spot where fluctuation was suspected. About half-an-ounce of thick, creamy pus escaped devoid of any fæcal odour. The forefinger was introduced with the object of opening up, as suspected, a larger abscess cavity situated more deeply. Although done under the most careful manipulation, it became

¹ The specimen referred to in this paper was shown at a meeting of the Glasgow Pathological and Clinical Society on 11th February, 1895.

evident that the adhesions surrounding the abscess cavity had been broken through, and a communication with the peritoneal cavity established. It was then deemed advisable to open freely into the abdomen, and to proceed to remove the appendix, and thoroughly wash out the peritoneal cavity.

In enlarging the incision the parietes were found enormously thickened, and in one place measured, at least, 3 inches.

The appendix was discovered at the lower part perfectly free and normal. The floor of the abscess was found to be formed by a ragged, thickened mass of tissue on the surface of two portions of bowel, which were intimately united together. The more external portion was the colon, while the internal was a coil of small intestine.

While manipulating the parts a small fragment of bone was discovered lying loose. The patient being in a profoundly collapsed condition, no attempt was made to detach the firmly adherent coils of intestine at the spot above mentioned. There were no adhesions elsewhere.

The abdominal cavity was washed out with a 1 to 80 solution of carbolic acid and the wound stitched up, except at the lower part where a glass drainage tube was inserted into the pelvic cavity.

The foreign body was three-quarters of an inch long and had all the appearances of a fish bone. That it proved to be true bone was shown by a microscopical examination, which revealed numerous well-marked lacunæ and Haversian canals. The subsequent history of the case requires only a brief notice. The patient, without rise of temperature, made a somewhat slow but uninterrupted recovery.

Remarks.—Reasoning on the basis of probabilities rather than on any clearly defined evidences of mischief connected with the appendix, I was led to support the diagnosis of appendicitis. It is comparatively so uncommon, in this particular region, to meet with inflammation in the male subject arising from other causes than those connected with the appendix, that I fear I attached too little importance to certain symptoms which, when the real cause was revealed, were unquestionably of diagnostic value. Remembering, however, how many are the phases which an appendicitis may assume, it may be considered pardonable that the diagnosis of a foreign body as the *fons et origo mali* was not made, though it may not be quite so much so, that it was not entertained.

Looking at the affection, therefore, in the light of its true cause, the following history and symptoms seem of

importance. Although the man had been in the Hospital on three previous occasions for pulmonary phthisis, it was not till his fourth admission that any complaint was made regarding the swelling in the groin. On this occasion his admission was solely for the pain in his right inguinal region which had only troubled him for two weeks. It was noted in the report of the condition of the patient at this time that a rounded tumour could be felt in the right inguinal region, the limits of which could be defined, and which was of firm consistence and somewhat tender on pressure. For the five weeks prior to operation his temperature fluctuated between 97° and 99° . He had never had anything approaching a rigor. Any pain had been insignificant. He had never vomited; and beyond a slight looseness of his bowels, they had given him no trouble.

Thus it will be seen that the onset and progress of the disease had been gradual, without marked disturbance to the patient, and much more conformable to what would be expected from the slow natural progress of expulsion of a foreign body from the bowel, than from what more usually happens in the case of an ordinary acute suppurative appendicitis.

There are many ways by which nature seeks to expel an impacted foreign body such as a fish bone. The method which she has selected in this case appears to be the following:—

The bone first became impacted either in the small bowel or the large. (It did not appear possible at the operation to determine which, but as the cæcum is most frequently the part for the lodgment of foreign bodies, it is more than likely that it proved the seat of perforation in this case.) It little matters, however, which it was, for the result of perforation would lead to a similar result in each instance. The first effect of impaction would be to cause ulceration, and this proceeding slowly would set up a certain amount of "peritonitis" and plastic peritonitis, which would result in the formation of adhesions between adjoining coils of intestine. The process slowly continuing, the fish bone would form for itself a bed of inflammatory material outside the bowel. A later stage in the inflammatory process would result in the formation of an abscess; and as the pus at the operation was found to be devoid of smell, it must be concluded that the apertures in the bowel through which the bone passed had become so effectually occluded immediately after its passage, that no faecal material escaped. The increase in size of the abscess would lead to adhesions being formed with the abdominal parietes, the result of which would be to set up the

extensive oedema and inflammatory thickening of the wall preparatory to the final thinning, which without operation would probably have given way, and admitted of the ejection of the bone. The only possible doubt as to this being the final result is that the excessive thinness of the wall which separated the abscess cavity from the general peritoneal cavity might, under some sudden or severe exertion on the part of the patient, have given way before the enormously thickened parietes had sufficiently thinned to admit of the natural expulsion of the "body."

The case, as thus explained, is a typical example of many similar ones which have been recorded; and had the other result happened—that of rupture of the abscess into the peritoneal cavity—a like example of other similar reported cases would have been afforded.

In conclusion, I wish to draw particular attention to the communication which was accidentally established between the two cavities of the abscess and the peritoneum at the time of operation. On seeking to explore with my finger the extent of the former cavity, quite unexpectedly, because performed with great care, I found my finger in some limitless cavity, which I at once concluded must be that of the peritoneum. There was then nothing left to be done but to open the abdomen, and properly cleanse the peritoneum by copious irrigation. I further proceeded to examine the appendix, with the object of removing it, as I believed it to be at the bottom of the mischief. As already stated in the report, it was at this stage that the fish bone was accidentally discovered, and the examination of the appendix proved it to be perfectly healthy.

Prior to the partial closure of the parietal wound, the abscess cavity was stuffed with iodoform gauze.

The patient made an excellent recovery without rise of temperature, and with no symptoms beyond what were attached to the healing of the wound.

A point which occurs to me of paramount importance, and which is so well illustrated in this case, is that the prompt and complete removal of the pus which escaped into the abdominal cavity through the communication made with my finger, had been fraught with the complete absence of any untoward consequences. Does it not seem to reasonably teach that in any case of ruptured stomach or bowel, the result of accident or ulceration, the extravasated material be promptly removed, and the acute general peritonitis so disastrously fatal in these cases would be effectually prevented?

CASE OF SIMULTANEOUS ULCERATION OF THE
LYMPHATIC TISSUES OF THE THROAT AND
INTESTINES, WITH SUPPURATION OF THE COR-
RESPONDING GLANDS IN THE NECK AND
MESENTERY.¹

By T. K. MONRO, M.A., M.B.,

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A SEWER-LABOURER, æt. 30, was admitted to the Victoria Infirmary, under Dr. Parry, on 14th May, 1894, on account of a swelling on the right side of the neck. This was about the size of a hen's egg, and was situated behind the sterno-mastoid muscle, at about the level of the pomum Adami. The skin was not discoloured, nor was it adherent to the swelling, and there was no tenderness on pressure. The swelling was hard at the edges, but soft and fluctuant in the centre. The interior of the pharynx was found to be ulcerated. The swelling in the neck was incised, and a large quantity of pus escaped. The wound did not discharge much afterwards, but it was noticed that the cervical glands were enlarged. The temperature rose after the operation and continued high. Delirium set in, and, for ten days before death, there was diarrhoea.

Post-mortem.—Very destructive ulceration was found in the right *tonsil* and in the neighbouring part of the pharyngeal wall. It extended down the inner surface of the *pharynx* to the level of the glottis. It also destroyed part of the right ary-epiglottic fold, and thus passed into the *larynx*. It then continued downwards, passing behind the false and true vocal cords on the right side, to end, below these structures, on the right lateral wall of the larynx. When the tonsil was cut into, thick, yellow pus escaped.

A small sinus over the middle of the right sterno-mastoid muscle was found to lead into a large collection of pus in the cellular tissue of the neck. This abscess extended as far down as the level of the clavicle, and as high as the second cervical vertebra. It was not connected in any way with the bones of the neck.

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society on the 22nd February, 1895, when the specimens referred to were shewn. The discussion on the communication will appear in our June number.

The *lymphatic glands* of the neck were much enlarged, and contained purulent foci.

The left tonsil was only slightly ulcerated, and there was little or no extension of the destructive process to the pharynx on this side.

The glands on the left side of the neck also were enlarged and suppurating, but the pus had not broken through into the cellular tissue.

Small abscesses were found on the surface of the *thyroid gland* on the right side.

The signs of *peritonitis* were present over the whole abdomen, though less markedly in the pelvis than in other parts. The small intestines were distended as if from paralysis of their walls. Their serous coat showed the effects of inflammation very distinctly, and a large quantity of lymph was present in the abdominal cavity. Appearances suggested that the violence of the disease had been concentrated in the region of the ileum and cæcum; and when the adhesions (which were very firm) were broken up, thick purulent material escaped from among them. At these parts, the intestinal wall was very friable, and broke down readily. The vermiform appendix was fixed by adhesions, but was otherwise normal.

The œsophagus, stomach, and upper part of the small intestine were healthy. Very striking changes, however, were found in connection with the *lymphoid follicles* of both *small and large bowel*. These follicles were undergoing suppuration and ulceration. The ulcers differed entirely in character from those of either tuberculosis or enteric fever. Each individual follicle tended to become a small abscess. Thus, where the follicles were aggregated, as in a Peyer's patch, they did not swell up together into one mass destined ultimately to slough off and leave a fairly smooth surface, but each little abscess developed on its own account and burst, so that a patch was dotted over with abscesses not yet opened in the midst of others which had already opened. The result, therefore, was to give a most irregular and ragged aspect to the mucous surface in this region. The margins of the ulcers were quite ill defined. There were no tubercles on the serous surface of the bowel; but a specially marked focus of lymph-exudation might be observed on this surface corresponding to each ulcer. Some of the Peyer's patches had not yet undergone loss of substance, but consisted of aggregations of abscesses of about the size of pin-heads. Where the morbid process was most advanced, only the thinnest possible layer of

intestinal wall remained. Where an ulcer was so deep as this the edge was often vertical, but never, or scarcely ever, undermined. Close to this, however, there might be unopened follicles, and also little pits, each of which indicated the situation of a follicle that had ceased to exist.



FIG. 1.—TONGUE, LARYNX, &C.

The lesion has extended from the right tonsil down into the larynx, causing much damage to the right ary-epiglottic fold.

It could scarcely be said that the ulcers were either transverse or longitudinal.

In the large bowel, some of the solitary follicles were affected in the same way as the agminated ones already described.

In the case of the rectum, similar little abscesses were seen

in the serous coat, though the mucous membrane appeared to be normal.

No perforation of the intestine could be discovered.

The *mesenteric glands* were in a condition exactly similar to that of the cervical glands.

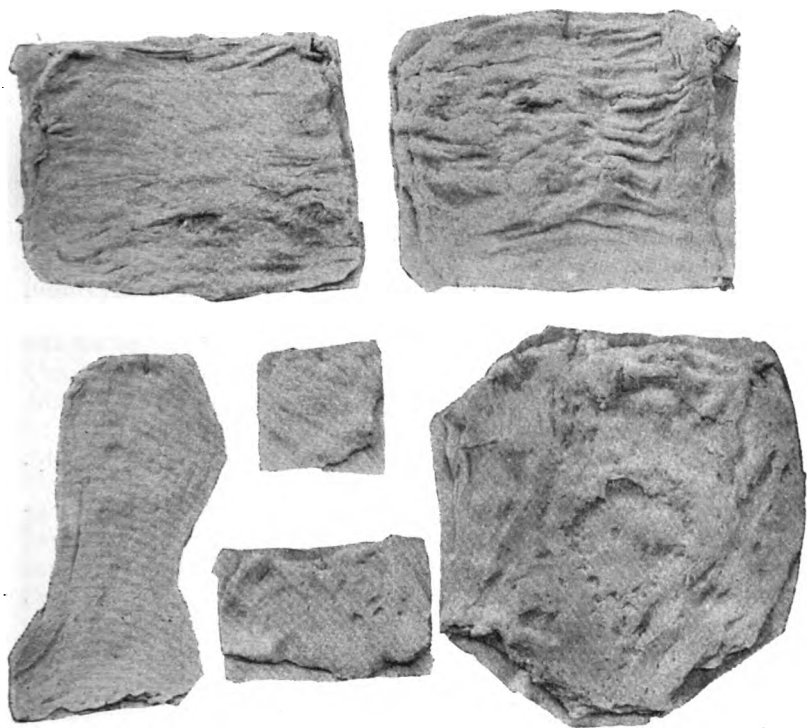


FIG. 2.—SEVERAL PIECES OF INTESTINE.

The most characteristic appearance is shown by the portion at the lower right-hand corner. A considerable ulcer is observed with no regular outline. In its floor there is still to be seen a single follicle not yet burst. Around the ulcer, and for some distance from its margin, there are scattered little pits representing separate follicles which have already supplicated and discharged their contents.

The *spleen* was large (weighing $11\frac{1}{2}$ oz.) and very soft.

The *kidneys* were large (weighing together $14\frac{1}{2}$ oz.), soft, pale, and fatty. There was practically no tendency to adhesion of the capsules. A single, small, pale area was present in the right, and a few small, clear cysts were found on the surface of the left kidney.

The *liver* was large (81 oz.), soft, and fatty. A limited number of small pale areas were seen under the capsule. Their appearance suggested small abscesses similar to those already described.

The heart weighed 12½ oz., but, beyond this slight enlargement, seemed quite normal.

The lungs were non-adherent. The only noteworthy features about them were congestion of one base and œdema of both bases.

With the help of Dr. William Watson, formerly of Belvidere Fever Hospital, I prepared and examined numerous sections from various organs. We used the ordinary nuclear stains; also Gram's method, and the special Ziehl-Neelsen stain for tubercular bacilli. The following are the results:—

There were no abscesses or distinct signs of inflammation in the kidney.

In the *liver* there were numerous little collections of round cells in the interlobular (portal) areas. The cells in the centre of such an aggregation did not stain so well as those at the periphery. These small, purulent foci were present, not only immediately under the capsule, but in large numbers in the substance of the organ.

Numerous small abscesses were found in the *thyroid* gland, both under the capsule and more deeply.

No tubercular bacilli were found anywhere. The liver was found to be overrun with micrococci, which were not confined to the neighbourhood of the small abscesses. The organisms were not in chains or in any other definite arrangement, and were therefore, doubtless, staphylococci. Similar organisms were found deeply situated in sections of *intestine*, but on the ulcerated surface they were particularly numerous, being there collected in masses. Organisms of the same kind were found in the *tonsil* and in the *thyroid*.

The peritonitis was due to extension of inflammation either from the intestine or from the mesenteric glands. The facts that a specially thick layer of lymph was found on the serous surface of the bowel at points corresponding to deep ulcers on the mucous surface, and that organisms were found deeply situated in the substance of the intestine, favour the former view. The analogy of the morbid process in the neck, where suppuration burst through the glands into the surrounding tissues, favours the latter hypothesis. Both modes of extension of inflammation to the peritoneum are recognised—in the absence of perforation—in connection with enteric fever.

As to the lesions in the throat and bowel, there are three possibilities :—

(1) The virus settled in the tonsils and other lymphatic tissues in that region; some of the multiplying organisms were swallowed and infected the tissues of similar nature in the intestine. This would resemble the infection of the bowel by tubercular bacilli, when a person suffering from phthisis swallows his sputum. Sometimes swelling of Peyer's patches is found after death from scarlet fever, a disease in which a lesion of the tonsils is one of the main features. Wunderlich states that during convalescence from this fever there may be a variety of symptoms, besides the course of the temperature, which closely resemble the phenomena of enteric, whilst without doubt there is no enteric present. In severe cases of scarlatina there may be persistent cerebral disorders, diarrhoea, meteorism, and great enlargement of the spleen; the disease may continue a fortnight or more after the eruption fades, and the fever may thus assume a subcontinuous or remittent type.¹

Or (2) the virus settled primarily in the follicles of the intestine, the tonsils becoming infected later. The sequence here could be one of time only, and not of cause, so far at least as the path from bowel to throat by the digestive tract was concerned. It is, of course, possible that the virus was conveyed to the tonsils from the intestine by the blood, but if the tonsils were so susceptible as to succumb to this mode of infection nearly simultaneously, or even if one suffered first and then infected the other through the buccal cavity, it is almost certain that these structures would suffer, as soon as, or earlier than, the Peyer's patches, from the direct attacks of the micrococci when they first entered the mouth or pharynx in a virulent form.

Or (3) the invasion took place independently and nearly simultaneously in the throat and bowel. Organisms entered from without in considerable numbers, and finding a suitable nidus in the lymphatic tissue with which they came in contact, settled in it; so that neither region was infected from a lesion in the other, but each independently. In connection with the second and third hypotheses, we may recall the facts that in enteric fever, where the primary lesion is intestinal, a sore throat—which may be attended by a red rash suggestive of scarlatina—is sometimes complained of at the outset; and that ulcers, regarded by some high authorities as specific typhoid lesions, are occasionally present in the larynx.

¹ *Medical Thermometry*, pp. 304, 305, 350; New Syd. Soc., 1871.

It cannot be said now which was the order of events in the case narrated, and, indeed, the question is not of very great importance. Only a meagre clinical history was obtained, but it seems clear that the patient had suffered very little inconvenience from his throat before he was driven by other symptoms to ask medical assistance. It is much more important to recognise that the cells of the lymphoid follicles perished in both situations alike under the assault of virulent organisms. This is an excellent illustration of the doctrines which were recently enforced by Dr. Sims Woodhead, in an address on "The Channels of Infection in Tuberculosis."¹ Dr. Woodhead stated that the occurrence of infection by the respiratory system was so well known already that its importance did not require to be urged at the present day; whereas infection by the tonsil, which has lately been ascertained to occur not infrequently in pigs, ought to be borne in mind much more than has hitherto been the case. In man and certain other animals there is a ring of lymphoid tissue round the entrance to the larynx, and another round the entrance to the gullet. It appears to be a function of the wandering cells of lymphoid tissue to take up micro-organisms and destroy them. The cells, however, may be overpowered by force of numbers, or even, in the absence of vast numbers of organisms, by the extraordinary virulence of their assailants. The cells may succumb, or, without dying themselves, they may be unable to resist the progress of the organisms towards the lymphatic glands, where disease may be consequently initiated. What applies to the lymphatic tissue of the throat and the associated lymphatic glands applies also to the lymphoid tissue of the intestine and the mesenteric glands. Dr. Woodhead was dealing with the tubercular bacillus; the case narrated in this paper illustrates the common susceptibility of the lymphatic tissues of the throat and bowel to the destructive energies of another organism, a septic micrococcus.

The fact of the patient having been a worker in sewers might furnish the text for a long discussion on one of the most hotly disputed questions of modern medicine. In the *Medical Magazine* for August, 1894, the first article is one by Sir George Johnson on "Various Forms of Disease the Result of Sewage Poisons," and the second is one by Sir Charles A. Cameron on "Sewers as Health Resorts." This is very perplexing to the unsophisticated mind, but it may be stated that Sir Charles does not take up the extreme position which the title of his article might suggest. He calls attention,

¹ *Lancet*, 27th October, 1894.

however, to the extraordinarily small numbers of organisms found in the sewer-air of such towns as Berlin, Bristol, and Dundee as compared with the numbers found in a school or in the open air of the same towns. The sewer-air of London and Paris, also, is remarkably free from organisms. Even those¹ who hold most strongly to the theory that disease is spread by sewer-air admit that workers in sewers and among sewage-matter are at least as healthy as the general population. Some would even allow that, with respect to health, they constitute a favoured section of the community. Yet, from the clinical point of view, few facts can be more convincing than those which go to shew that certain diseases do arise under conditions of sewage-poisoning, from defective drainage, or otherwise. In the meantime, an unbiassed person will probably take up the position that one or other form of sewage-poisoning constitutes an undoubted agency, but yet only one of many agencies, by which some diseases may be spread.

The case which has been narrated is of interest, no doubt, in connection with this question; but it appears to me to be of still greater importance as a forcible illustration of the recent teaching of Dr. Woodhead.

FURTHER NOTES ON CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.

By ERNEST L. MARSH, M.B.,
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THIS second series of cases of diphtheria treated with the antitoxin supplied by the British Institute of Preventive Medicine forms a further account of my observations on the clinical course of this disease under treatment with the curative serum. They are not directly related in sequence of time to the cases previously reported,² owing to ill-health interrupting my duties for a time; but the continuation of the treatment during this interim was placed with Dr. J. Allan Wilson, and my colleague's experience relates to the ten cases in the accompanying table.

¹ See the article by Mr. J. Parry Laws, in the *Medical Magazine* for May, 1894, for information on this subject, so far as London is concerned.

² *Glasgow Medical Journal*, 1895, vol. xliii, p. 175.

No.	Name.	Age.	Dura- tion of Ill- ness.	Dates of				Serum Inoculation.		Seat of Local Diphtheria.
				Admis- sion.	Serum Inocula- tion.	Discharge Well.	Death.	Hours after Admis- sion.	Total Quantity used.	
1 (vii)*	Elizabeth D.	4½	Days. 6	1894. Dec. 28	1894. Dec. 29	1895. ...	1894. Dec. 29	21½	20 c.c.	Fauces, pharynx, and larynx.
2 (viii)	Agnes M'F.	2	6	" 28	" 29	Jan. 30	...	23½	30 "	Fauces.
3 (ix)	Mary S.	1½	13	" 31	1895. Jan. 1	Feb. 1	...	2½	20 "	Fauces and larynx.
4 (x)	Nellie N.	3	5	1895. Jan. 2	" 2	" 18	...	6½	30 "	Larynx.
5 (xi)	Samuel M'D.	4	3	" 5	" 5	...	1895. Jan. 5	1	20 "	Fauces and larynx.
6 (xii)	William S.	2	6	" 6	" 6	Feb. 15	...	¾	30 "	Larynx and pharynx.
7 (xiii)	John M'L.	3	5	" 10	" 10	Jan. 23	...	4¾	20 "	Fauces.
8 (xiv)	Rosina M'B.	2½	8	" 10	" 10	" 28	...	1½	20 "	Fauces and larynx.
9 (xv)	Clara M'I.	2½	5	" 14	" 15	Feb. 18	...	¾	30 "	Fauces and larynx.
10 (xvi)	Wm. M'D.	4	6	" 15	" 15	" 18	...	½	30 "	Fauces and larynx.

* The small Roman figures within brackets refer to the continued number of the series of cases.

CASE I (XVII).—Dora W., aged 2½; weight, 23 lb.

History of Case previous to Injection.—Patient was admitted to hospital on 21st January, 1895, at 5 P.M., with a history of an illness beginning two days before with croupy cough, and symptoms of sore throat.

The temperature on admission was 99.2° F., the pulse registered 130, and the respirations numbered 36 per minute.

State of Patient at time of Inoculation.—When the patient came under my charge, on the morning of the 22nd, the following notes represented her condition:—

The patient is a puny child, whose muscles are soft and ill-developed. The skin is moderately warm to the touch and pale in appearance. The character of the breathing readily attracts the attention, in that it is accelerated (44 per minute), and is attended with a moderate amount of respiratory distress and such acoustic phenomena as crowing and hoarseness, indicating involvement of the larynx. The amount of inspiratory dyspnoea causes both the passage by the mouth and nose to be used for breathing, and also occasions a certain amount of recession of the lower part of the chest wall. A short paroxysm of difficult breathing occurred in the early morning, during which the face became livid. At present both the cheeks and lips have a slightly livid tint. The child is inclined to rest quietly, and only becomes restless and fretful when examined. Examination of the throat shows a condition of moderate inflammatory congestion about the fauces. There is no enlargement of the tonsils, but their surfaces are covered with diphtheritic membrane. Patches of similar membrane are seen on the posterior pillars of the fauces, and on the posterior wall of the pharynx. The uvula shares in the congestion noted above, but anterior to this the mucous surfaces look healthy. The mouth is moist, and the tongue clean. At the back of the throat there is evidence of an abundant muco-purulent discharge coming from the posterior nares, but the anterior nares show nothing of this. The cervical glands are not enlarged.

Examination of the chest by percussion is negative, while on auscultation only sonorous rhonchi are heard over the bases behind. There is an occasional dry, croupy cough. No membrane has been coughed up since admission. The heart's sounds are rapid, but otherwise satisfactory. The pulse is 160, regular, and soft.

Patient drinks without difficulty, and takes plenty of fluid nourishment. The bowels are open, and the motions appear to be normal. Urine has been passed in bed on several occasions.

At 12 o'clock mid-day, 20 c.c. of serum were injected under the skin of the abdomen at two separate points.

Besides the serum treatment, patient was getting every two hours a mixture containing 5 minims liq. hydrarg. perchlor., $1\frac{1}{2}$ minims tr. ferri mur., 1 minim liq. strychninæ hydrochlor., 5 minims glycer. pepsini acidi. Locally, a throat spray of saturated sol. of boric acid was employed every four hours, and the neck was poulticed. A teaspoonful of brandy had been administered hourly since admission.

At 12:20 noon the respiratory distress became exacerbated, and for the next ten minutes the whole of the child's energies seemed to be taken up with the accomplishment of respiration. During this time the countenance displayed a well-marked congestive lividity, and a similar condition was noted at the extremities. As the breathing became less embarrassed, patient fell asleep, and the lividity of the face was replaced by an ashen pallor. An hour later the child was again very restless. The breathing continued hurried, but there was no special evidence of difficulty. The colour of the cheeks had now assumed a leaden hue, while the rest of the countenance was extremely pale.

At 4 P.M. the character of the pulse had altered for the worse. It was intermittent, irregular, and easily effaced. Under the influence of increased stimulation (brandy) there was a temporary improvement in the pulse, and in the general appearance of patient. The restless condition, however, never altered, and the evanescent improvement noted above was early replaced by signs of severe prostration, with deepening of the leaden hue of the face. Death occurred at 5:30 P.M.

The following were the records of the temperature, and of the pulse and respiration rates, during the illness in hospital:—

21st January.	Temperature.	Pulse.	Respiration.
5 P.M.	99.2° F.	130	36
(when admitted)			
22nd January.			
6 A.M.	99.0°	130	32
12 MID-DAY	98.6°	144	40
4 P.M.	98.2°	192	44

No examination of the urine could be made, as it was passed in bed throughout the illness.

Bacteriological Examination.—At 6 P.M., 21st January, a culture tube containing glycerine agar was inoculated from a swab passed over the tonsils. The growths examined a day later yielded the bacillus diphtheriæ and numerous micrococci.

Post-mortem Examination made at 10 A.M. 24th January.

The body is in an indifferent state of nutrition, and has only a slight covering of fat. The punctured skin of the abdomen looks healthy. On following out the course of the hypodermic needle in the abdominal wall, an area of ecchymosis, about the size of a florin, is discovered at each site of puncture, lying between the superficial layer of fat and the upper surface of the external oblique muscle. The amount of extravasation is slight, and there is no other pathological change visible.

Thorax.—The pericardium contains about an ounce of serous fluid. *Heart* is normal. The left ventricle contains a small quantity of dark fluid blood, and the other cavities show some *post-mortem* clots. Weight, $1\frac{1}{2}$ oz.

The *left lung* weighs $2\frac{1}{2}$ oz. Its tissue is highly vascular, but otherwise it looks healthy on section. The bronchial tubes, even to the finer bronchi, are congested and full of muco-purulent secretion. The *right lung* has its lowest lobe markedly congested. The bronchial tubes in this lung present similar contents and appearances to those already described as existing in the left lung. Weight, 3 oz.

Abdomen.—*Spleen* normal; weight, $\frac{3}{4}$ oz.—*Left kidney* weighs $1\frac{1}{4}$ oz. On section the cortical substance looks congested.—The *right kidney* presents similar appearances to the above; weight, 1 oz.—The *liver* is in a state of moderate passive hyperæmia; it weighs $11\frac{1}{2}$ oz.—In the *intestines* a few Peyer's patches, situated about a foot from the ileo-cæcal valve, present a congested appearance.—The *pancreas*, *adrenals*, and *stomach* present nothing noteworthy.

Throat.—The larynx, trachea, the whole of the tongue, together with the faucial parts and the soft palate, were dissected out. While this was being done, a considerable quantity of pus and mucus flowed from the posterior nares into the cavity thus made. Examination of the floor of the posterior nares shows it to be much injected, and covered with patches of diphtheritic membrane. A patch of pseudo-membrane is also present on the posterior surface of the uvula. The internal surfaces of the larynx and trachea were exposed to view by a posterior longitudinal incision, when the presence of very definite and firmly-attached false membrane was discovered, extending from the epiglottis to half way down the trachea. From this point downwards the respiratory tube is much injected, but devoid of membrane. The faucial parts are congested, and show characteristic deposits of pseudo-membrane on the surfaces of the tonsils and pillars of the fauces. These patches of membrane extend backwards over the posterior wall of the pharynx. The congestion of the mucous surfaces, already noted as beginning at the fauces, extends backwards as a slate-coloured area which involves the larynx and pharynx, ceasing abruptly about the level of the upper margin of the cricoid cartilage.

CASE II (XVIII).—Alexander G., aged 4½; weight, 30 lb.

History of Case previous to Injection.—Patient was admitted to hospital on 25th January, 1895, at 7.30 P.M., in the eleventh day of an illness which began with symptoms of a cold and slight sore throat. The angina early attracted the attention of the medical attendant owing to a white, tenacious deposit occurring on the surface of the right tonsil. This membranous exudation gradually became more in evidence, and on the 22nd inst., a fragment removed from the throat was sent to the laboratory of the Royal Infirmary, and, as a result of bacteriological examination, the diagnosis of diphtheria was established.

On admission, his temperature was 99° F. Beyond some pallor of the countenance patient presented no marked symptoms. The pulse was 144, regular, but small and of low tension. The heart-sounds were accelerated, but otherwise presented no noteworthy modification. He respired easily (32 times per minute); there was no cough, and the lungs were normal. The tongue was pale and lightly coated. There was slight congestion of the faucial mucosa, and a little enlargement of the tonsils. The only visible evidence of a local diphtheritic lesion was confined to the surfaces of the tonsils where several well marked patches of pseudo-membrane of a pearly-white appearance existed. The lymphatic glands on the right side of the neck were a little enlarged. The quantity of urine passed between admission and 12 o'clock midnight of the same day was 15 oz. This was acid in reaction, and deposited albumen on testing. The treatment of the throat by a spray of warm saturated solution of boric acid was commenced shortly after admission and repeated every four hours.

State of Patient at time of Inoculation.—During the 19½ hours that patient was under observation prior to the commencement of the serum therapy, he rested quietly and took nourishment well. Except for a slight angina, and a temperature of 99.6° F., there was no new development of anything characteristic or positive in his condition.

At 3 P.M. on 26th January, 20 c.c. of serum were injected in two doses at separate places under the skin of the abdomen. The throat treatment was continued as before.

Progress of Case.—Shortly after the injection he became restless, and had a slight fever. This febricula succeeded and progressed with the manifestation of the local symptoms of a slight inflammatory condition of the parts that received the injections. He continued fretful and restless for the

remainder of the day—the following being the records of the temperature, and of the pulse and respiration rates:—

26th January.	Temperature.	Pulse.	Respiration.
6 P.M.	102·2° F.	134	32
10 P.M.	103·8°	144	32

14 oz. was the total quantity of urine passed on this day.

During the night patient continued very restless, and occasionally complained of pain at the seat of the injections. Slight general perspiration had been observed several times, and when examined at the visiting hour on the morning of the 27th inst., the skin felt moist. There was a faint flush and some tenderness in the neighbourhood of the injections; otherwise patient presented nothing remarkable. The lesion in the throat had not progressed, except that over the surface of the tonsil, where a piece of the pseudo-membrane had been removed the night before, a reformation of the deposit had occurred. The character of the pulse was unaltered.

At 12·30 noon of this day, 6 c.c. more serum were injected, with the usual antiseptic precautions, under the skin of the abdomen. This was followed by a second slight exacerbation of fever (see temperatures). He slept, however, for long intervals during the afternoon and evening. Nourishment continued to be well taken. The skin throughout the latter part of the day felt moist, but there was no visible perspiration. The urine passed during the twenty-four hours ending at 12 midnight, measured 11½ oz. It had a specific gravity of 1030, was acid in reaction, deposited urates, and contained a considerable and increased amount of albumen. The following were the four-hourly records of the temperature, and of the pulse and respiration rates for this day:—

27th January.	Temperature.	Pulse.	Respiration.
2 A.M.	103·0° F.	144	30
6 A.M.	102·2°	148	34
10 A.M.	100·2°	136	36
2 P.M.	100·6°	134	34
6 P.M.	101·8°	144	36
10 P.M.	102°	134	32

On the morning of the 28th inst., the night nurse reported that patient's rest had been frequently disturbed during the night, but that in other respects he had been favourable. He looked bright, and had a tinge of colour in the cheeks. The pulse was regular, and of better tension than formerly. The

heart-sounds continued satisfactory. The faucial parts now presented a more active congestion and a brighter appearance, which contrasted with the dull, inactive condition of the mucosa noted previously. There was slight diminution in the amount of pseudo-membrane on the tonsils. The skin in the immediate neighbourhood of the injected parts showed a faint erythematous blush, and pressure elicited slight pain. During the rest of this day patient made progress in obtaining sleep and in taking nourishment. 17½ oz. of urine were passed on this date, and had a specific gravity of 1020, was acid, and contained a large quantity of albumen. The records of the temperature, and of the pulse and respiration rates were as follows:—

28th January.	Temperature.	Pulse.	Respiration.
2 A.M.	101.0° F.	128	30
6 A.M.	100.4°	134	30
10 A.M.	99.2°	120	32
2 P.M.	99.6°	132	24
6 P.M.	98.2°	112	28
10 P.M.	98°	108	24

On the 29th inst., the child presented a very satisfactory appearance. He had slept well during the night, and was bright and disposed to play throughout the day. The membrane had now disappeared from the fauces. The colour of the cheeks was good. The bowels were moving spontaneously. The morning temperature was normal, and the evening showed a slight depression to 97.8° F. at 6 P.M., to 97.6° at 10 P.M., and stopped falling at 97° at midnight. The pulse had a frequency a little more than ordinary, but was perfectly regular in time, and of fair strength. The quantity of urine passed measured 19½ oz. It had a specific gravity of 1022, was acid in reaction, and deposited less albumen than the previous samples. His temperatures next day (30th inst.) were normal, and after this date no abnormal temperatures at all were noted. The pulse continued regular, and its rate now averaged 96. From this time onwards the pulse continued quiescent, and regained its natural force. The quantity of urine passed on the 30th was 20 oz., while on the following two days 31 oz. and 27 oz. respectively were passed, and after this the daily average was 40 oz. The albumen gradually diminished in quantity, and finally disappeared on 9th February. The general condition of patient continued extremely favourable, and after being allowed up on 4th February he soon lost all symptoms indicative of debility,

and, without developing paralysis during convalescence, was dismissed in excellent health on 6th March.¹

Bacteriological Examination.—On 25th January a culture tube containing blood serum was inoculated from a swab passed over the tonsils; examination of the growths twelve hours later yielded the bacillus diphtheriæ.

CASE III (XIX).—Mrs. Y., aged 29; weight, 10 st. 5 lb.

History of Case previous to Injection.—Patient was admitted to hospital on 1st February, 1895, at 5.40 P.M., in the third day of an illness which began with sore throat and malaise. Her temperature on admission was 101° F. Her complexion was fresh, and she presented no urgent symptoms, but expressed herself as feeling pretty well. There was slight dysphagia. Examination of the throat showed the tonsils to be moderately enlarged and congested, and to have patches of pearly white pseudo-membrane, resembling coagulated white of egg, on their surfaces. Removal of this membrane exposed a bleeding surface. The peritonsillar tissues presented simple acute inflammatory redness and swelling, while the mucous membranes of the uvula and posterior wall of the pharynx were of a dark-red colour. There was no evidence of any nasal or laryngeal involvement. The cervical glands were not enlarged. The pulse was frequent (112 per minute), but satisfactory both as to strength and regularity. Physical examination of the chest was negative.

During the night the bladder was evacuated several times, and yielded an acid urine free from albumen. No noteworthy change in patient's general condition occurred during the night, but in the morning of the next day (2nd inst.) the throat was found to present a fresh patch of pseudo-membrane on the left anterior pillar of the fauces; and it was also observed that the denuded surface of yesterday was again covered with a fibrinous deposit. A subsequent careful examination of the throat made at 3 P.M. of this day revealed no further spreading of the diphtheritic patches.

Throughout the morning, and in the early hours of the afternoon, the breathing continued calm and natural. There was a continuation of the subfebrile heat, but no marked change of colour nor of facial expression. The treatment

¹ The patient was again seen and examined on 19th April—i.e., a little more than six weeks after dismissal. He looked healthy and had no paralysis, but the mother stated that "a thickness in speech and blustering at his meals" was noticed shortly after his return home, and only disappeared slowly.

adopted up to this time was directed against the local condition, and consisted in the application of poultices to the neck, and subjection of the throat to a spray of warm saturated solution of boric acid every three hours.

State of Patient at Time of Inoculation.—The treatment by serum inoculation was commenced at 3:30 P.M., 2nd February, when 30 c.c. of serum were injected under the skin of the left flank. An hour and a half previous to this the temperature had recorded 99·8° F., while the pulse had not altered either as to strength or frequency, and was always quite regular. Twenty-seven ounces of urine of a specific gravity of 1035 had been passed during the last fifteen hours. This was acid in reaction and deposited urates, but contained no albumen. Patient had absolutely nothing to complain of beyond a slight sense of pain in the throat. She took food well and in good quantity. The respirations were perfectly quiescent, and examination of the lungs showed an entire absence of palpable and acoustic symptoms. There were no toxic symptoms of diphtheria present.

Progress of Case.—The day ended with no noteworthy alteration in patient's general appearance and throat condition. The skin had become moist. Eight ounces more of urine, similar in character and reaction to the above, were passed at 10 P.M.

The following were the observations on the temperature, and on the pulse and respiration rates made after the injection:—

2nd February.	Temperature.	Pulse.	Respiration.
6 P.M.	100·4° F.	108	24
10 P.M.	100·2°	104	22

45 oz. of urine were passed on this date.

On the 3rd inst., the night nurse reported that patient had slept well during the night, and had expressed herself as feeling very well in the morning. There was a little tenderness, but no inflammatory swelling or redness, at the site of the injection. No membrane had been expelled. Examination of the throat showed the hyperæmia to be less than yesterday, and a diminution in the amount of pseudo-membrane to have occurred. This was especially the case with the patch on the anterior faucial pillar, which was now little more than a delicate film. The skin was slightly moist, but free from any blush or rash. The urine showed a trace of albumen for the first time. The pulse had slowed down somewhat (96 per minute), but was regular and of good character.

The temperatures, and pulse and respiration rates for this day were:—

3rd February.	Temperature.	Pulse.	Respiration.
2 A.M.	99.4° F.	100	24
6 A.M.	99.4°	104	24
10 A.M.	98.2°	96	24
2 P.M.	99.4°	100	22
6 P.M.	99.4°	96	24
10 P.M.	100.2°	100	24

33 oz. of urine were passed during the day. This had a specific gravity of 1025, was acid in reaction, deposited urates, and contained a trace of albumen.

On the 4th inst., only a very small patch of pseudo-membrane could be seen on the surface of the left tonsil. It had disappeared from the anterior pillar of the fauces, and the only evidence of the former condition was a slight erosion of the surface lately occupied by the membranous exudation. Patient now felt very well. Throughout the day the pulse continued regular, and maintained a nearly even rate not exceeding 100, and averaging 90 to 96. Her temperatures had been taken every four hours during the day, and the picture they made on the chart so closely resembled that of yesterday, that the above may be taken to represent them. The urine passed on this date measured 43 oz., and had a specific gravity of 1020. It continued acid in reaction, and still showed a trace of albumen on heating.

The small patch of membrane present on the surface of the left tonsil slowly but gradually disappeared, and on the 6th inst. the throat became perfectly clean, and might be described as normal in appearance except for a slight amount of congestive staining still present about the fauces. Her temperatures were almost absolutely normal throughout the 5th and 6th February. The pulse and respirations were also almost perfectly quiescent. The amount of urine passed on these two days was respectively 53 oz. and 59 oz.—the average specific gravity being 1010. It was acid in reaction, and still contained a trace of albumen.

From this time onwards patient quickly became established in convalescence. Active treatment was entirely suspended on the 6th inst., and the only medicine taken systematically after that time was Easton's syrup. Patient continued to pass on an average 55 oz. of urine daily, which became perfectly free from albumen after the 14th inst. She was now allowed

to sit up, and afterwards made an interrupted recovery, being dismissed well on 27th February.¹

Bacteriological Examination.—On 1st February, a culture tube containing blood serum was inoculated from a swab passed over the left tonsil; examination of the growths twelve hours later yielded the bacillus diphtheriæ.

CASE IV (XX).—Leo P., aged 7; weight, 2 st. 10 lb.

History of Case previous to Injection.—Patient was admitted to hospital on 9th February, 1895, at 10 P.M., with a history of an illness beginning four days before with a cough, which at first had no distinctive characteristics. On the 7th inst., the throat presented what was thought to be an ordinary inflammatory redness and swelling, but next day the medical attendant became suspicious of diphtheria through the appearance of exudation on the throat. Up to this time there had been slight dysphagia, but scarcely any affection of the breathing till three hours before admission, when a well marked but brief attack of dyspnoea occurred.

State of Patient at time of Inoculation.—The treatment by serum inoculation was commenced an hour and a half after admission—viz., at 11.30 P.M. The following notes describing the general appearance and physical condition of the patient were made in the interim.

There is only a delicate tinge of natural colour in the countenance, but the lips look healthy. He is not too ill to take an interest in his surroundings, but his intelligence appears intensified by the expression of apprehension present: the pupils are dilated. The breathing is rapid (36 per minute) and a little difficult, and attended with a stridulous sound on inspiration, audible at some distance. The neck is extended, the nostrils dilated, and the chest wall sucked in in the respiratory effort. He is unable to rest quietly. The pulse is rapid (140 per minute), regular, small, and bounding. He speaks in a hoarse whisper, and appears to have lost the power of vocal speech. There is an occasional harsh, husky cough. The visible morbid conditions in the throat exist as a diffuse inflammatory redness over the mucous surfaces of the fauces and back of the throat, where there is a deposit of white membraniform exudation on the surface of both tonsils, and

¹ Patient was again seen and examined on 21st March—i.e., three weeks after dismissal, when the soft palate and uvula were found to be completely insensitive to touch, though patient was unconscious of any inconvenience in swallowing or articulating. There was no evidence of a paresis elsewhere.

on the posterior wall of the uvula. There is slight enlargement of the tonsils, especially the right. The cervical glands are only slightly enlarged. On percussing the chest the note obtained is normal, but the type of breathing cannot be heard owing to the breath sounds being drowned in the accompanying laryngeal noises.

At 11:30 P.M. 18 c.c. of serum were injected under the skin of the abdomen, and immediately followed by 12 c.c. more serum injected at another point in the abdominal wall.

Patient was also getting 1 dr. of whisky every two hours, and the throat was being sprayed with boric acid solution every three hours. He also inhaled the steam of hot water for five or ten minutes every hour.

A small quantity of urine (3 oz.) passed at midnight had a specific gravity of 1025, was acid in reaction, and contained urates, but no albumen.

The 10th inst. saw the patient sick with grave constitutional symptoms, and distressing signs of obstruction to breathing. It was recognised that there were sufficiently threatening circumstances present warranting and demanding the operation of tracheotomy, but objection on the part of the patient's friends caused this to be delayed. The symptoms of asphyxia gradually predominated over the other symptoms, and at 4:30 A.M. patient's appearance was strikingly altered for the worse. The countenance was pale, livid, and ghastly. He no longer took any interest in his surroundings, but had become fractious, extremely restless, and appeared much exhausted. The pulse was 120 per minute, feeble, and irregular in force and rhythm. Along with the dyspnoea there was a rattling sound in the trachea, and shallow breathing.

At 5 A.M. the operation of tracheotomy was done to stave off the immediate danger of suffocation. A Foulis' cannula was introduced into the trachea above the isthmus of the thyroid gland, and the relief thus obtained reanimated patient for a short time. There was a considerable quantity of viscid mucus coughed up through the tube, but no membrane. The quantity of whisky given was increased to 1 dr. every half hour for the next two hours. Though the breathing was conducted with comparative ease, and the urgent suffocative phenomena had disappeared, the pulse became feeble, and so weak and rapid as to be counted with difficulty. The sleep deepened into stupor, and the patient died in coma at 7:20 A.M.

The following are the observations on the temperature, and on the pulse and respiration rates during the illness in hospital:—

374. MR. MARSH—*Diphtheria treated with Antitoxin.*

9th February.	Temperature.	Pulse.	Respiration.
10 P.M.	98·6° F.	124	36
12 MIDNIGHT	99·2°	144	36
10th February.			
4 A.M.	97·0°	132	44
5 A.M.	absent.	120	40

Bacteriological Examination.—At 10·30 P.M., 9th February, a tube containing blood serum was inoculated from a swab which had been passed over the surface of the tonsils. Examination of the growths on the morning of the 12th inst. yielded the bacillus diphtheriæ and numerous streptococci.

Post-mortem Examination made 12th February.

The body is that of a well-nourished boy. The superficial veins over the neck and trunk are distended, and their course well defined. The punctured skin of the abdomen looks healthy, and on following out the tract of the hypodermic needle, the usual localised hyperæmia is found in the tissues which received the fluid.

Thorax.—The organs as seen *in situ* appear to be normal. The pericardium contains a small quantity of serous fluid. *Heart.*—The left ventricle and auricle contain a quantity of dark blood-clot. The right auricle is considerably distended with dark blood-clot, and there is a small quantity in the right ventricle. The valvular strictures are normal. The muscular tissue is firm, and dark in colour. The *left lung* is adherent by delicate bands of fibrous tissue to the parietal pleura over a small portion of the upper lobe. The cut section presents a congested appearance. The bronchial tubes contain a little muco-purulent secretion, and their lining membrane is much injected. Weight, 7½ oz. The *right lung* also presents universal congestion, the lowest lobe markedly so. The bronchial tubes contain muco-purulent secretion, and are much injected. Weight, 8½ oz.

Abdomen.—*Liver* is dark in colour, and on cut section its substance is seen to be congested. It weighs 27½ oz. *Spleen* is rather pale in colour, and has a granular appearance on section. Weight, 2½ oz. The *kidneys* are slightly congested. Each weighs 2½ oz. The *pancreas*, *adrenals*, and *intestines* present nothing noteworthy.

Throat.—The larynx, trachea, the whole of the tongue, together with the faucial parts and the soft palate, were dissected out. This enabled a view of the floor of the posterior nares to be obtained, and it was found to be injected and slightly tumefied, and to have several small patches of pseudo-membrane near the base of the uvula. On exposing the faucial parts to view, the tonsils were seen to be moderately enlarged. The right gland was almost completely covered with thick diphtheritic membrane, while the left only exhibited this deposit on its posterior surface. The posterior

pillars of the fauces were also occupied in part by membraniform exudation. The mucous membrane of the posterior wall of the pharynx presents the same dull, livid appearance common to the parts at the back of the throat, and the congestion which gives rise to this appearance ceases with the limits of the ring of lymphoid tissue surrounding the entrance to the œsophagus and the larynx. On opening the larynx posteriorly, and extending the incision down through the back of the trachea so as to expose the mucous surfaces, the presence of diphtheritic membrane is seen to be universal from the under surface of the epiglottis to the commencement of the larger bronchi. When this membrane is peeled off from the larynx a pale surface is exposed, but the whole of the tracheal surface, when similarly treated, is found to be reddened and tumid. The trachea shows a wound in the middle line through the first cartilaginous ring, and the cricoid cartilage is also cut through.

ON A CASE OF PRIMARY CANCER OF BONE.¹

By JOHN LINDSAY STEVEN, M.D.,

AND

J. R. M'CHEYNE MILLER, M.A., M.B., C.M.

WHILE secondary cancer of the bones is by no means uncommon, especially as a late result of carcinoma of the mamma, primary cancerous formations in bone are so excessively rare that a number of pathologists doubt the possibility of the development of such tumours. It is for this reason, then, that we desire to put on record the notes of a case which, after the fullest investigation, we must regard as falling under the second of these varieties—viz., primary cancer of bone.

Daniel B., aged 65, a dyer, was admitted to Ward III of the Glasgow Royal Infirmary, on the 22nd October, 1894, under the care of Dr. D. C. M'Vail, and he died on the 26th November. The following is an account of the *post-mortem* examination:—

External Appearances.—Body greatly emaciated with marked retraction of the abdomen; pupils equal and slightly contracted; apparent age, 75; rigor mortis moderate.

Chest.—On opening the chest, an elongated tumour is found to occupy the body of the seventh rib on the right side. The

¹ This paper was read at the meeting of the Glasgow Pathological and Clinical Society, on 11th February, 1895. The osseous tumours were shown, as well as microscopic preparations of the same.

inner end of this tumour corresponds to the junction of the cartilage with the bone, and it is about two inches in length. The right lung is adherent over the apex, and at the posterior and lateral surfaces of the organ. The lateral adhesion corresponds to a localised consolidation of the lung, which upon section is found to have a mottled gray and white colour, somewhat like that of caseous pneumonia, but differing strikingly from this in the smoothness of the cut surface. The area of consolidation is not larger than a walnut. In the pleura around this adherent area are a number of pearly-white, opaque nodules, irregular in size and shape, and flattened. The left lung is adherent by old bands over its lower lobe; and in the extreme apex of this lung there is a small nodule of healed tubercle, the size of a horse-bean. The base of the right lung is in a state of acute red hepatisation.

The heart is much atrophied, but in all respects presents healthy appearances; and the coronary arteries are normal, except that the right coronary takes origin in a sacculated pouch of the aorta which is manifestly congenital. The aorta throughout its whole extent is practically normal, here and there one or two unimportant patches of atheroma being observed.

Abdomen.—The mucous membrane of the stomach and of the intestine, in its whole extent, is carefully examined and found to be quite normal. The liver, the kidneys, the spleen, the urinary bladder, the testicles and the vesiculæ seminales present quite normal appearances.

The left ilium, at its anterior superior spinous process, is occupied by a bulky tumour, which has evidently originated in the interior of the bone, and has expanded its way outwards. In substance this tumour is dense, and has a pearly-white colour. The whole of the left innominate bone is thickened, and the tumour extends in the substance of the bone towards the symphysis pubis.

On section of the tumour of the seventh rib, it is found to present to the naked eye a sarcomatous appearance. Through the centre of the mass the atrophied remains of the rib can be traced.

The brain and the bones of the skull are carefully examined and found to be quite normal. There is very moderate atheroma of the middle cerebral arteries.

At the time of the *post-mortem* a very careful search through the whole body was made for any tumour which could be regarded as the primary source of the osseous growths, and the result was entirely negative. On the edge

of the right upper eyelid there was a small warty projection, less in size than a barley-corn and not ulcerated nor irritated in any way. During life the question had been raised as to whether this little nodule was epitheliomatous. It was carefully removed and, after hardening, sections were prepared for microscopic examination, which revealed no epitheliomatous characters whatever. The structure of the little nodule was that of a papilloma—viz., an outer covering of tolerably normal epidermis, and an internal structure composed of fibres and leucocytes. It is quite certain that this little nodule had no relation of any kind to the osseous tumours.

Portions of the tumours in the ilium, the rib, and the lung were carefully hardened for microscopic examination. Sections were cut by the celloidin method, and the stains employed were carm.-alum. and hæmatoxylin.

Microscopic examination of the tumour of the ilium reveals a characteristically cancerous structure. The whole extent of the section is beset with masses of nucleated, epithelial corpuscles, closely packed in groups of varying size and shape. Sometimes the alveolar stroma is exceedingly well demonstrated, forming large, round cavities in which the cancer elements are contained. At other situations the epithelial elements are arranged in linear or small circular groups, as if they were occupying a series of tubular spaces, but here also the very definite spindle-celled, fibrous stroma is strikingly made out. In the larger alveolar in the midst of the cancer elements there are frequent large vacuoles, sometimes filled with a homogeneous, gelatinous material, whose precise nature is not easy to determine. The arrangement of the alveolar stroma frequently recalls that of cancellated bone, although there are no osseous elements in the stroma. The nuclei of the cancer elements are very well defined, indicating vigorous proliferation, and with high powers cancer bodies and intracellular proliferation are occasionally observed.

The tumour of the rib presents characters very similar to those just described. If anything, the alveoli are on the whole somewhat larger and more irregular, but the stroma is essentially the same in character, and the contained cancer cells present the same peculiarities, even to the presence of the vacuolated spaces in the midst of them. Altogether, the tumour of the rib has a more diffused and broken-up character than that of the ilium.

Sections of the affected area of the lung present essentially similar characters, the stroma and the cancer elements being in all respects the same as those found in the bone. The

cancerous tissue in this situation, however, is more broken up, and has less regularity in its conformation than is the case in the tumour of the ilium or of the rib. The question as to whether the nodule in the lung is to be regarded as the primary formation is carefully considered, and is decided in the negative for these reasons:—(1) The size of the tumour was much less than is usually the case in cancers of the lung; (2) its situation—the lateral surface of the organ—is an unusual site for a primary cancer of the lung to originate; (3) its immediate relationship to the costal tumour rather suggests direct extension from the rib as the cause of the pulmonary nodule; and (4) if the tumour did not originate by continuity from the rib, it is to be noted that the microscope revealed occasionally a close relationship of the cancer elements to the perivascular lymphatic spaces of the pulmonary arteries, which was suggestive of an embolic rather than of a primary origination in the lung. We are thus of opinion that the pulmonary nodule is a secondary manifestation.

The clinical record of the case throws no light upon it. On admission the patient complained of pain in the region of the left hip, and it was thought that a small patch of shingles discovered there might account for the pain. A few days after admission he lapsed into a typhoid condition, with muttering delirium, and this continued more or less pronounced until the time of his death, about a month afterwards. The warty nodule of the eyelid and the tumour of the rib were noted and commented upon during life, but the iliac tumour was not discovered.

CURRENT TOPICS.

FACULTY OF PHYSICIANS AND SURGEONS.—UNVEILING OF THE MEMORIAL TO MR. PETER LOWE IN THE CATHEDRAL.—The tablet which has been placed in the nave of the Cathedral to the memory of Mr. Peter Lowe, the founder of the Faculty of Physicians and Surgeons of Glasgow, was formally inaugurated on the afternoon of Friday, 5th April, 1895. The memorial, which is of bronze, has a suitable allegorical composition modelled in low relief by Mr. Macgillivray. It bears the inscription, copied from the monument which was erected in the Cathedral churchyard in 1612, prefaced by a

statement that it has been placed in the nave as the original stone is now much decayed. The ceremony of unveiling, which was performed by Dr. Bruce Goff, the President of the Faculty, was witnessed by a large number of professional and other gentlemen. Among them were Rev. Dr. Burns, Rev. Dr. Marshall Lang, Lord Dean of Guild Brown, Deacon-Convener M'Lennan, Professor Gairdner, Dr. Glaister, Dr. M'Vail, Dr. James Finlayson, Dr. Hector C. Cameron, Mr. James Nicol, city chamberlain; Dr. Lapraik, Mr. Henry Rutherford, Dr. W. J. Fleming, Dr. Thomas, Dr. J. D. M'Laren, Dr. James A. Adams, Dr. John Goff, Dr. Lindsay Steven, Dr. Mather, Dr. William G. Dun, Mr. W. G. Black, secretary of the Glasgow Archæological Association; Mr. John Honeyman, and Mr. J. O. Mitchell. The Rev. Dr. Burns having engaged in prayer,

Dr. Goff delivered a brief address. He said that what was known of Dr. Peter Lowe had been gathered very largely from the very admirable and painstaking researches which had been made by the Honorary Librarian of the Faculty, Dr. Finlayson. The place of Dr. Lowe's nativity was not known. It was generally supposed, however, that he was born in or near Glasgow or in the West of Scotland in 1550. At the age of 15 or 16 years he went to France, and there completed his medical education, taking his degree in surgery at Paris. After that, according to his own account, he practised in France, Flanders, and other countries for nearly twenty-two years, after which he returned to Paris, and became surgeon-major to the Spanish regiments. Two years subsequently he was appointed surgeon-in-ordinary to the King of France. He remained in that position for six years, and was then found coming to London, where he published in 1596 his first work, the subject being the Spanish sickness. Next year he published his work on surgery, which, by the way, was the first systematic book on this branch of the profession issued in the English language. He came to Glasgow, it was generally believed, in 1598. This was gathered from the fact that there was an entry in the burgh records of the city, dated March, 1599, stating that there was a renewal of the contract with Dr. Peter Lowe for attending the poor. There was also an entry in the Presbytery records to the effect that he was brought under ecclesiastical discipline. It was pretty nearly proved from this that he must have been in Glasgow in 1598. Shortly after, records showed that the magistrates began to see the necessity for some reform in medical matters. They therefore appointed a committee—or probably a board—consisting of three bailies, three clergymen, and other men

"who were cunning in that art," of whom it was reasonable to suppose that Dr. Peter Lowe was one. Following this, he took occasion to obtain a charter for the Faculty of Physicians or Surgeons. At this time he was chief surgeon to Prince Henry, the son of James VI. This circumstance probably explains the influence with the King, which enabled Lowe to do this. The powers conferred were very comprehensive. The Faculty were to examine all people who practised surgery or medicine in the West of Scotland, and to license them, and to cite anyone before them, and either to fine or imprison those who did not make their appearance when cited. The charter also gave power to investigate all sudden deaths, and to examine all drugs that were sold in the city, and to visit the poor; as a matter of fact it foreshadowed reforms which had taken place within the past 50 years. Having obtained this charter Dr. Peter Lowe practised in Glasgow for many years. The date of his death was not absolutely known, but he was supposed to have died about 1612 or 1613. The inscription on his tombstone was very curious in regard to its wording, its punctuation, and the way in which it was engraved on the stone. Dr. Goff then unveiled the tablet.

DR. FINLAYSON, Honorary Librarian of the Faculty, said that whilst Peter Lowe was in Glasgow, he enlarged his book upon surgery as the result of experience which he gained in the city during his practice; and it was further improved by the introduction of woodcuts or engravings which had not appeared in the first edition. In the work he had likewise embodied the first translation of the Hippocratic writings into the English language. When it was mentioned that the work went through four editions, the last one being published in 1654, it would be understood that in its time it had great celebrity and a wide circulation. The great claims which Peter Lowe had to recognition were the fact that he was the founder of the Faculty of Physicians and Surgeons, which for nearly 300 years had carried on the licensing power entrusted to it by King James VI; further, that he had actually published the first original work on surgery; and that he gave to the world the first translation of part of the works of Hippocrates into the English language. Looking back from this distance, they had no hesitation in saying that his motive was right in departing from the use of Latin. But at the time when Peter Lowe's works were published, it was insisted that such treatises should be published in that language; and, in point of fact, he was denounced for having, as his friend Clowes in London said, "Given forth his treatises in our

English tongue." With regard to his character, one could gather, by glancing over his book, that he had no mean opinion of his own status, abilities, practice, and surgical works. The gauntlets still to be seen in the Faculty Hall, embroidered as they were with silver and gold, showed in what grand style he appeared in public. He was always described in the records of Glasgow as "Mr. Peter Lowe," and he so signed his name to documents. It was positive that he had a gaiety of spirits, for in his books we could trace a good deal of humour, and it was apparent even in the narration of his cases. It was extremely probable that the person who drew up his inscription only perpetuated one of the leading features of his character when he wrote—"For of his God he got the grace to live in mirth and die in peace."

The proceedings terminated with the customary votes of thanks.

UNIVERSITY OF GLASGOW.—The following have passed the *first* professional examination (Old Regulations) for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

Thomas Small Goodwin, Charles David Picken, Alex. J. T. Swan, Ernest M. Watkins.

The following have passed the *first* professional examination (New Regulations) for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.), in the subject or subjects indicated after their respective names (B., Botany; Z., Zoology; P., Physics; C., Chemistry):—

James Napier Baxter (B., P.), James Freeborn Bennett (Z., C.), William Bennett (B.), William Broad (B., Z., C.), Andw. Brownlie (P.), John Brunton (B., P.), Thomas Bullough Calland (B., C.), Ranald Douglas Campbell (P., C.), James Carruthers, M.A. (P.), Alexander Henderson Cassels (Z., C.), James Robert Chalmers (Z., C.), Andrew Clark (B.), David Maclure Cowan (Z., C.), George Morris Crawford (B., P.), John Cullen (P., C.), Charles Cheven Cumming (Z., P.), Archibald William Wallace Davidson (Z., P.), David William Davidson (Z., C.), John Lithgow Davie (B., P.), James Dick (Z., P.), James Austin Dickie (Z., P.), Frank Lindsay Dickson (Z.), James Drummond (P., C.), Comyn MacGregor Finlay (Z., P.), Matthew William Fraser (Z., P.), John Andrew Garden (B., P.), John Gracie (B., P.), George Henry Fullarton Graves (Z.), Archibald Wilson Harrington (Z., P.), Leslie Charles Broughton Head (Z., P.), John Henderson (C.), Issac Mackay Huey (Z., P., C.), Thomas Inglis (Z.), Robert Dallas Kennedy (B., P.), Andrew Kerr (Z., P.), David

Littlejohn (B., c.), James Grant Miller (z., p.), Ramsay Miller (z., p.), Hugh Miller (p.), Norman Macleod Miller (z., p.), Alexander MacCulloch (B., c.), James Hogg MacDonald (z., p.), Archibald Turner Macewen (p., c.), Peter MacIntosh M'Fadyen (z., p.), John M'Gilchrist (z., p.), David Duncan Fraser Macintyre (B., p.), Chas. Forbes Maclean (z., p.), Norman Forbes Maclean (z., p.), William Johnston MacIure (B., p.), Alfred Robert MacIurkin (z., c.), John M'Millan (B., p.), Roderick Reid Macnicol, M.A. (c.), Thomas Neill (B., p.), John Patton (B., z., c.), Thomas Stephens Picken (z., p.), William Barr Inglis Pollock (B., p.), Arthur Robin (z., p.), James Scott, M.A. (z., c.), John Shaw, M.A. (z., c.), James Shearer (B., z., p., c.), Andrew James Smith (z., p.), David James Smith (z., p.), James Smith (p., c.), James Johnston Smith (B., c.), William Stewart Stalker (p., c.), Alfred George Stewart (z., c.), Frederick Richardson Stewart (B., c.), James Douglas Brownlee Stewart (B., c.), Peter Donald Strachan, M.A. (B., c.), James Alexander Sutherland (B., p.), Charles Pinkerton Thomson (z.), William Brown Thomson (B., p.), Thomas Bird Tierney (p., c.), Alexander Laurie Watson, M.A. (z., p.), Alexander Simpson Wells (z., c.), Robert Orr Whyte (B., z., p., c.), George Henry Wildish (z., p.), Morgan Watkin Williams (p.), Alexander Wilson (z., p.), William Wright (z., p.), John Doctor Young (z., c.).

Women Candidates.—Sarah Davidson (p., c.), Marjorie King Henderson Fleming (p., c.), Jessie Downie Granger (p., c.), Mabel Hardie (p., c.), Jessie Sophia Beatrix Hunter (p., c.), Mary Longmire (B., p.), Jane Lorimer (c.), Annie Louise M'Ilroy (B., c.), Ina Lothead M'Neill (p., c.), Mary Lauchline M'Neill (z., p.), Sara Maude Robertson (p., c.), Maud Spencer (p., c.), Gertrude Florence Fleetwood Taylor (p.), Grace Lorrain Young (p., c.).

The following have passed the *second* professional examination (Old Regulations) for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

William Buchan Armstrong, John Tait Bowie, John Ritchie Burns, James Banks Cumming, John James Edgar, George Louis Le Fevre, Robert Hugh Meikle, John Allan Craigie Macewen, William Fullerton M'Ewen, Archibald M'Glashan, Lionel Mitchell Mackay, William M'Mullen Pearson, James Hood Rankin, James Rutherford Ratcliffe, Robert Shanks, Joseph Sillars, Archibald Stevenson, David Lyon Stevenson, M.A.

The following have passed the *second* professional examination (New Regulations) for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subject or subjects indicated after their respective names (A., Anatomy; P., Physiology; M.M. and T., Materia Medica and Therapeutics):—

Alexander Smith Allan (A., P.), Theodore Belchambers Broadway (A., P.), David Louis Cairns (A., P.), Francis James Charteris (A., P.), Joseph Adam Clarke (A., P.), George William Coats (A., P.), James Duncan Cochran (A., P.), Walter Scobie Findlay, M.A. (A., P.), James Finlayson Fleming (A., P.), Adrian Andrew Forrester (A., P.), Lawrence Whitaker Harrison (A., P., M.M. and T.), Alexander Lawrie (A.), William Mitchell Lindsay (A., P., M.M. and T.), William Glen Liston (A., P., M.M. and T.), John MacDonald (A., P.), James M'Haffie (A., P.), David M'Kail (A., P.), James M'Queen, M.A. (A., P.), Normal Emil Henry Scott (A., P.), Alexander Bankier Sloan (A., P.), Samuel Macfarlane Sloan (A., P.), David Steele Smith (A., P.), James Strang (A., P.), Matthew Logan Taylor (A., P.), Walter Lewis Thomson (A., P.), William Watson (A., P.), Ernest Watt (A., P.), Edward Roberts Weir (A., P.), William Wyper (A., P.), David John Young (A., P.).

Women Candidates.—Daisy Annabella Murdoch Clark (A., P.), Margaret Elizabeth M'Neill (A., P.), Jessie Hawkesworth Smith (A., P.).

The following have passed the *third* professional examination for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

A., including Pathology.—John Allan, Samuel Anderson, B.Sc., John Ritchie Brown, William Burns, Malcolm Campbell, John Divine, Matthew Dunning, Thomas M'Gibbin Fletcher, Daniel M'Intyre Glen, George Hanson, Allen Iredale, John William Jackson, John Knight, John Walker Munro, William Milroy M'Farlane, John Souttar M'Kendrick, Hugh M'Laren, John M'Laws, Thomas Duncan Newbigging, Harry Couper Patrick, David Shedden Service, James Craik Taylor, Noel Charles Echlaz Ward, Henry Whitehouse, James Eric Wilson.

Women Candidates.—Mary Baird Hannay, Madge Speirs Maclean.

B., not including Pathology.—Alfred Charlton, Duncan Drummond, George Henry Beck Harvie, Robert Hastie, James Hogg, Edwin Brooke Jago, John Marshall, Samuel Martyn, John Robert Gordon Philips, James Malloch Robertson, Neil Robson, Wm. Kerr Russell, Ernest Fred. Docetti Walker.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1894-95.

MEETING V.—11TH FEBRUARY, 1895.

The President, DR. KNOX, in the Chair.

I.—SPECIMEN OF MALIGNANT TUMOUR OF THE PANCREAS, PRESENTING CERTAIN UNUSUAL FEATURES.

BY DR. J. LINDSAY STEVEN.

Dr. Steven showed as a fresh specimen a malignant tumour, probably cancerous, of the head of the pancreas which, he said, presented some features that were rather unusual. The tumour, originating in the head of the pancreas, had penetrated the duodenum, and had formed a large, sprouting, fungating ulcer, which surrounded the orifice of the common bile-duct. The manner in which the secondary involvement of the liver had taken place was also unusual. There was no large secondary tumour in the liver; the secondary nodules were all miliary in size, none of them being much larger than a pin-head, and they were found distributed round the branches of the portal vein, thus indicating the mode of infection. The gall-bladder was enlarged and hypertrophied, there having been biliary obstruction. The patient had been a woman who died deeply jaundiced.

II.—SPECIMENS OF MYOMATA OF THE UTERUS.

BY DR. J. LINDSAY STEVEN.

These also were shown as fresh specimens. They had been obtained from the patient mentioned above, were small in size, and presented the usual appearances of such tumours.

III.—SPECIMEN FROM A CASE IN WHICH THE SYMPTOMS AND CERTAIN *POST-MORTEM* APPEARANCES SUGGESTED SPON- TANEOUS RUPTURE OF THE BLADDER.

BY DR. T. K. MONRO.

J. C., æt. 44, brushmaker, was admitted to the Victoria Infirmary, under Mr. Maylard, on 14th May, 1894, and died on the following day.

The following clinical history has been extracted from the report made by the resident assistant, Dr. Selkirk:—Fourteen years ago the patient had gonorrhœa, following which for some years there had been symptoms of stricture.

A week prior to admission into the Infirmary, he had retention, and, according to his own statement, a catheter was passed, but no water was drawn off. When, shortly afterwards, he passed some urine, it was found to be tinged with blood. A similar attack of complete retention occurred a few days later when, he stated, some urine was withdrawn by catheter.

When admitted into the Infirmary—a week after his first attack of retention—he presented the following condition:—He was suffering great distress, being doubled up with the acuteness of the abdominal pain. His abdomen was much distended in the lower part; tense and dull to percussion. He was suffering from retention of urine, which was considerably relieved by the withdrawal of about a pint of bloody urine. A No. 5 gum elastic catheter which was used passed without difficulty. An examination of the abdomen afterwards showed little or no alteration in the original condition. A firm, almost hard, smooth mass was felt, extending from the pubes to just above the umbilicus, which, from its median situation, presented all the characters of a much distended bladder.

The catheter was again passed later in the evening, about 8 oz. of offensive bloody fluid being withdrawn. Between 7 A.M. and 8 A.M. of the following morning, the patient complained greatly of pain; the catheter removed about 10 oz. of bloody fluid. He was much blanched, with rapid and thready pulse. At 9 A.M., when first seen by Mr. Maylard, the diagnosis of an extra-peritoneal rupture of the bladder was made. As it appeared that the patient was suffering, in addition to his other symptoms, from loss of blood, three pints of normal saline solution were injected into the median basilic vein of the right arm. The pulse improved very much. The patient was pressed to have an exploratory operation, but refused. In the afternoon he consented, but his condition then appeared almost hopeless.

Operation.—The abdomen was opened in the median line. There immediately escaped a quantity of gas, followed by a large amount of blood-stained fluid with a very strong ammoniacal smell. A swelling was found just above the bladder, which appeared like cellular tissue infiltrated with

dark blood-clot. The patient's condition becoming serious, it was deemed unwise to make any further investigation. A drainage tube was therefore inserted, and the wound was closed. The patient succumbed three hours afterwards.

Summary of Post-mortem.—The abdominal cavity contained a large quantity of blood-stained fluid. The signs of acute peritonitis were seen, in the form, particularly, of abundant fibrin on the surfaces of the viscera, and of great distention of the intestines.

The anterior and superior aspects of the bladder were covered by an extremely thick layer of what appeared to be blood-clot beginning to undergo organisation. Microscopic examination subsequently showed that this was the case. A distinct depression could be detected by the finger on the posterior surface of the bladder, and when this organ was opened up, what was taken to be a completely healed rupture was discovered in its posterior wall, at the junction of the upper and middle thirds. The cicatrix-like area was vertical, and, when the bladder was held up to the light in such a way as to put its wall on the stretch, measured three-quarters of an inch vertically, by a quarter or a third of an inch transversely. This area was quite translucent, and seemed to be devoid of muscular fibres. Looked at from behind, the appearance was quite that of a scar, but the serous membrane was not more firmly adherent here than in neighbouring parts. Moreover, on the inner aspect also, the healing was complete, the mucous membrane being as freely movable over the submucous tissue in this situation as at other parts of the surface.

The wall of the bladder was thickened, and its inner surface was rugose. The great mass of material that gave rise to the sense of tumour was under the peritoneum, separating this membrane from the superior and lateral walls of the bladder. This viscus contained very little fluid, and no markedly hæmorrhagic contents. Its mucous surface was healthy-looking. The prostate was not diseased.

The urethra showed signs of having been wounded by the passage of an instrument. In the membranous portion, there was a distinct stricture, through which a No. 3 catheter could not be passed. Two false passages were discovered in this region, their tracks being marked out by considerable extravasation.

A well-marked pit was present in the recto-vesical pouch, but on careful examination, nothing could be found to suggest the opening by this route into the abdominal cavity of a false

passage from the stricture. The connective tissue around the base of the bladder was so loose—from the presence of large blood-vessels, &c.—that a false passage, if it existed, could scarcely have been distinguished from the numerous other canals. The effusion of blood into the cellular tissue was particularly abundant on the left side.

The liver was normal, and the kidneys were healthy or slightly pale. The spleen had a wrinkled capsule, as if it had been recently enlarged, but, apart from slight congestion, its tissue was normal.

[26th April, 1895.—When this case was reported to the Society, the specimen had not been cut up for examination, and I was of opinion that rupture had actually occurred. Further investigation, however, has convinced me that this view is not tenable. A microscopic section of the abnormal portion will be shewn at next meeting.—T. K. M.]

Mr. Maylard did not know that he had much to add to what had been said by Dr. Monro. The case had been a very puzzling one from the very first, because, as stated in the report, all the local appearances had been those of a distended bladder, and one had naturally expected that the passage of a catheter would cause disappearance of the tumour; it had, however, remained after catheterisation. The difficulty now was to see the connection between the rupture and the quantity of blood found effused. If Dr. Monro was right in dating the rupture as probably having taken place ten days before death, then one could not think that the bleeding had been associated with the rupture, but rather with the catheterisation; the latter view was borne out by the discovery of the false passages at the *post-mortem*. Of course all that had taken place before patient's admission to hospital. On admission he was *in extremis*. When the catheter was first passed in the ward there was blood in the urine withdrawn, and bleeding must have gone on, because there was blood in the urine on each subsequent catheterisation. On opening the abdomen, what they had seen had had all the appearance of a large blood-clot. It was difficult to know what to do, because this mass of blood had rendered it impossible to tell what they were working with, and they had feared that if they handled it they would do more harm than good. The specimen had shrunken through being preserved in spirit, but one could still get a very good idea from it of what the tumour must have been.

The two points of interest were the rupture and the

hæmorrhage, but Mr. Maylard could not see how they were to be connected one with the other. Supposing Dr. Monro to be right as to the ten days' duration, and remembering that ammoniacal urine had been found in the abdominal cavity, and that there had been evidences of generalised peritonitis, one could not but wonder why death had not taken place sooner.

Dr. Knox said that the case was a very remarkable one in respect of there having been apparently a spontaneous rupture in a bladder which seemed to have very thick walls. Of course it had shrunk in the alcohol in which it had been preserved, but even in the fresh state the walls must have been very thick except at the seat of rupture, and there seemed to Dr. Knox to be a dimple as if the rupture had been caused by an instrument. He would like to know if there were any history which could be construed in that light. Intra-peritoneal rupture generally took place as the result of a severe blow on a distended bladder, and the symptoms were usually very acute. He had had one such case.¹ In the present case the duration might be explained by the rupture being a small one, so that the urine would escape slowly, and symptoms arise only as decomposition took place. There did not seem to be any way of connecting the hæmorrhage with the rupture, and, like Mr. Maylard and Dr. Monro, he thought that the former had probably been due to the false passages.

Dr. Knox asked whether the thickened bladder wall had been examined with the microscope.

Dr. Monro replied that it had, and that he had found mainly blood-clot with some slight hypertrophy of the muscular tissue.

Dr. Rutherford asked if there had been any free blood in the peritoneal cavity.

Dr. Monro replied that at the *post-mortem* examination the peritoneal cavity had been found to contain blood-stained fluid, but no clots.

Dr. Lindsay Steven said that the most astonishing thing, to his mind, was the perfect union in such a comparatively short space of time. There was at the spot described a great thinning of the otherwise thickened wall (and this thickening he admitted to be from blood-clot), but though he had stretched it and looked carefully at both surfaces, he had not been able to see anything like a scar.

Dr. Rutherford had difficulty in believing that there had

¹ Cf. *Trans. Path. and Clin. Soc.*, vol. ii, p. 76.

been any perforation. He was not inclined to think that the scar could have been so sound, as it appeared to be, ten days after a rupture. Further, with a stricture of the tightness mentioned, and with the false passages described, he thought that if once a rupture had taken place it would not have healed. If there had been a very remote history of rupture and of recovery, one could suppose such a thing to have happened, but then he would have expected that in healing there would have been adhesion to another viscus. Spontaneous rupture sometimes occurred from the giving way of a diverticulum; he had seen such a case.

Dr. Rutherford could not believe that in the present case it had been by rupture of the bladder that the peritoneum had become involved. He would suggest that the general peritoneal surface had been infected somehow through the occurrence of a cellulitis.

Dr. Knox pointed out that urine with ammoniacal odour had been found in the peritoneal cavity.

Mr. Maylard suggested that Dr. Monroe should make some microscopic sections at the part where he thought that rupture had taken place, in order to settle the point under dispute.

Dr. Finlayson asked if there had been evidence of rupture when the specimen was fresh.

Dr. Monroe replied in the affirmative. It had admitted the passage of light.

Dr. Finlayson suggested that that might have been because at that part the blood-clot had been absent.

Dr. Monroe, in reply to the criticism that there had not been sufficient time to allow of perfect union, stated that, as house-surgeon, he had seen a case in the Western Infirmary in which Dr. Dalziel had operated by suturing the bladder. The patient had died in two weeks and a half, and at the *post-mortem* there had been no trace of the wound, or of anything but the stitches. With regard to Dr. Rutherford's second objection (founded on the presence of stricture), Dr. Monroe said that, though he was by no means clear as to what had taken place after the illness began, he thought that possibly the peritoneal cavity had been drained through the false passages, and the blood withdrawn obtained from it, and not from the bladder, the prostatic veins being the probable source of the blood.

Dr. Rutherford said that that theory did not remove his objection.

IV.—SPECIMENS, MACROSCOPIC AND MICROSCOPIC, FROM A CASE OF PRIMARY CANCER OF BONE.

BY DR. J. LINDSAY STEVEN AND DR. J. R. M'C. MILLER.

Dr. Miller read a report of this case, which had been prepared by Dr. Steven and himself. It appears as an original article on p. 375.

Dr. Steven quite admitted that the case was one for the consideration of members, and that there might be differences of opinion as to its being a primary cancer of bone. From embryological and histological considerations, one knew that primary cancer of bone was very rare. There were, however, cases on record which showed that tumours, with all the characteristics of cancer, had seemed to occur as primary tumours of bone, and Jones, in his work on *Diseases of Bone*, in the very last paragraph, as if as an addendum, mentioned a case of cancer in the ilium very like that now submitted. In that case Dr. Harris, the pathologist to the Manchester Infirmary, and Dr. Dreschfeld had examined the specimen, and both had admitted that it had all the appearances of epithelial cancer; in that case, too, just as in the present one, no other tumour, which could be regarded as the primary one, had been found after careful investigation. Dr. Steven was quite prepared to hear the suggestion that the tumour in the lung had been the primary one here. He had bestowed much attention on the subject of intra-thoracic malignant tumours, and, so far as his experience went, this small tumour did not present any of the characters of a primary cancer of the lung.

Dr. Steven showed to the meeting a calvarium he had obtained at the Royal Infirmary a year ago. It was, he said, perhaps another illustration of primary cancer of bone. The specimen had been macerated, and one could easily trace in it where the tumours had been. The largest of them was quite consistent with what was written about such tumours—namely, that they did not produce any great enlargement. There had not been much extension either outwards or inwards. Dr. Workman had proved the growths to be cancerous by decalcifying part for examination. No other primary tumour had been found at the *post-mortem*; one or two tumours in the liver and in the supra-renal capsules had been regarded as secondary. There was, however, a history of an operation by Dr. Knowsley Thornton and Sir Spencer Wells, by which both ovaries had been removed. It was thus

possible that the primary tumour had been in the pelvic organs; and accordingly Dr. Steven did not care to urge the primary character of the tumour of bone in that case, although he regarded it as very probably a case of cancer originating primarily in bone. From other cases of primary cancer of bone, which he had found reported, it would appear that such tumours generally originated in the bones of the skull, or in the pelvic bones, or in the jaw.

Dr. Finlayson spoke of a very interesting case which had recently been in his ward, and had come to a *post-mortem*. Its pathological value had been lessened by permission being granted only to examine the skull. The patient had been admitted with a swelling in the temporal region and some other nodular prominences on the skull, and his first idea had been that they might be syphilitic. There had also been severe pain in the region of the left hip joint. On the second day after admission, they had found a fracture at the site of a tumour of the femur. This fracture had taken place spontaneously and probably in the ward, because the patient had been able to move the limb on admission. This new feature of the case suggested, as the diagnosis, a sarcoma of the skull, with secondary growth in the femur. There had been noted, during life, exophthalmos, paralysis of all the orbital muscles, and ptosis. At the *post-mortem* they had found thrombosis of the sinuses and hæmorrhage on the surface of the brain, while the calvarium resembled very closely that shown by Dr. Steven. On removal of the brain, it had been seen that the new growth involved the sphenoid bone, into which a knife could easily be pushed. The cranial growths had turned out to be cancerous, and the tumour in the femur had been of the same nature. It was unfortunate that they had not been able to obtain permission to examine the internal organs.

Dr. Rutherford asked Dr. Steven if the thyroid gland had been specially examined in his first case.

Dr. Steven thought not, but he was sure that there was no enlargement of that organ.

Dr. Knox could certify that it had been examined clinically, and no enlargement detected.

Dr. Rutherford thought that was not conclusive. The microscopic appearances suggested to his mind a cystic formation, such as was found in secondary thyroid tumours. He did not think that that was common in other forms of cancer, and he understood that there were two facts recognised as to the secondary enlargements from thyroid tumours:—

(1) That they tended to affect the bones; and (2) that the primary tumour was not necessarily a very large one, and might be very small. He did not wish to assert that this had been a thyroid case. The appearances with the low power were particularly suggestive of cancer; so also were those with the high power; but there was this tendency to cystic formation. One was almost glad to see that there was some way out of adopting the theory that primary cancer could occur otherwise than from obvious pre-existing epithelial surfaces.

Dr. Knox had seen the patient during life, from whom *Dr. Steven* had subsequently obtained the specimens shown, and had been asked his opinion as to the swelling on the rib. *Dr. M'Vail* had clearly had in his mind that the case might be one of fracture or one of malignant disease. On examination *Dr. Knox* had found some crepitus; but the elongated shape of the mass had been rather against the idea that it was simply a fracture, and his view had been that it was a chronic inflammatory condition. The patient's body had been examined by *Dr. M'Vail* and by himself (*Dr. Knox*) for any other swellings, but with negative results.

Dr. Knox did not think that they could get over the diagnosis formulated by *Dr. Steven* and *Dr. Miller* that the case was one of true cancer, and that it was a primary cancer of bone was his (*Dr. Knox's*) own conviction, although one was accustomed to suppose that malignant tumours of bone were more of the sarcomatous type. In the lower jaw carcinoma had been recognised and explained as due to the inclusion of an epithelial germ in connection with the teeth. Here the jaw had not been affected; but, as there were no nodules of any size apart from those in the bones (unless that mentioned by *Dr. Steven* as having been found in the lung), *Dr. Knox* was inclined to think that the case was one of primary cancer of bone.

Dr. Steven, in reply, said that he quite recognised the importance of *Dr. Rutherford's* remarks, and he confessed that it had not occurred to him at the time to preserve the thyroid for microscopical examination. He was, therefore, glad to hear from *Dr. Knox* that clinically there had been no enlargement of that gland, as from macroscopic examination after death he could confirm this. Now that the matter had been referred to, he remembered a case which had been published by *Dr. Coats* in which tumours of the bones of the skull had followed on a goitre. In that case there had been an enlargement of the thyroid, and if similar enlargement had existed

here it would not have escaped notice. Further, although there were vacuoles to be seen in the sections shown, they were not filled with colloid material, and did not suggest to his (Dr. Steven's) mind the structure of the thyroid.

V.—SPECIMEN OF FISH BONE WHICH HAD PERFORATED THE BOWEL AND WAS REMOVED FROM AN INTRA-ABDOMINAL ABSCESS.

By MR. MAYLARD.

The report of the case from which this specimen was obtained is published as an original article at p. 350.

VI.—SPECIMENS OF TRUE BONE WHICH HAD DEVELOPED WITHIN A SARCOMA OF THE SPERMATIC CORD.

By MR. MAYLARD.

Clinical History (extracted from the Ward Report by the resident assistant, Dr. Macharg).—D. M., aged 52 years, was admitted into the Victoria Infirmary, under the care of Mr. Maylard, on 21st January, 1895. He stated that for fourteen years he had suffered from a swelling on the left side of his scrotum, which he believed to be fluid, although it had never been tapped. A year prior to his admission he began to suffer for the first time from a feeling of heaviness at the neck of the tumour. This slowly increased until two months ago, when the pain became very severe, and he noticed that various hard lumps had made their appearance in the upper part of the tumour. Three days before coming to the Infirmary, he consulted Dr. Peden, who introduced a trochar and canula, and withdrew a small quantity of thick, "treacly" fluid. Recognising the gravity of the case, he advised the patient to apply for admission to the Infirmary.

On admission he was found to have a large tumour on the left side of the scrotum. In shape it was conical, with the widest part or base above, measuring $7\frac{1}{2}$ inches in length, 4 inches in breadth, and 13 inches in circumference at the central part. Below the tumour was fairly uniform, above there were distinct hard bosses. That portion of the cord which could be felt at the highest part was greatly thickened. The skin of the scrotum was somewhat reddened, and with numerous large veins running through it. It was not translucent. Manipulation did not cause pain.

The tumour was removed; the skin of the scrotum was

first peeled off, and the cord surrounded and secured by a Staffordshire knot.

Pathological Report (Tumour).—Macroscopical Examination.—The lower part of the tumour consisted of a sac which contained a quantity of thick brown faecal-smelling fluid. The sac wall contained numerous plaques of calcareous material, and growing from its surface were several masses of tissue, varying from the size of a hazel-nut to that of a small potato, and having the consistency of soft fibrous tissue. The upper part of the tumour was solid, and when cut into presented a broken-down mass of grumous-looking material, with, towards its central part, spicules of what appeared to be bone. The mass appeared to be connected solely with the cord. The testicle was found, at the lower and posterior part of the sac, much shrunken, but its tubular structure was capable of being unravelled. It appeared entirely independent of the tumour.

Microscopical Examination.—Some of the broken-down grumous-looking material examined showed it to consist of large spindle cells; the hard bony-like material in its centre proved to be true bone. The lacunæ were numerous, but the Haversian canals were both numerous, much dilated, and very irregular.

The brown fluid contained a quantity of fatty *débris*, with intermingled numerous large cells, which resembled those of the main tumour, presenting, however, in many instances, more of an epithelioid type.

The wall of the sac and the bossy outgrowths were seen to consist mostly of fibrous tissue, which, in some places, formed thick layers of uniformly and regularly disposed wavy bundles of fibres. In both wall and bossy growths large cells were distinguishable.

In many places throughout the tumour were seen transitional stages between the spindle cells and fibrous tissue.

The sections, from which these descriptions were taken, were made for me by my assistant, Dr. Macharg.

Dr. Finlayson enquired as to what proof there was that the tumour was not connected with the testicle.

Mr. Maylard submitted a drawing which had been made, showing the position of the testicle as described above.

Dr. Knox said that it appeared as if there had been a sarcomatous growth in the wall of a hydrocele.

Dr. Lindsay Steven agreed with a remark which *Mr. Maylard* had made, as to the testicle being a situation in which bony tumours were not uncommon, although, in his

(Dr. Steven's) experience he had not met with many such cases. He had seen in other tumours bone-formation more pronounced than that now shown, *e.g.*, in fatty tumour of the buttock. Judging from the drawing, he thought that the title given above (*cf.* p. 393) was a correct description of Mr. Maylard's case, and sarcoma in the situation named did not astonish anyone, although the formation of spicules of bone must be very unusual.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

Caffeine in the Treatment of Asthma.—In a paper on this subject, Dr. Markham Skerritt claims for caffeine the power of relaxing bronchial spasm, and states that in his practice this remedy has long held the first place in the treatment of the paroxysm of bronchial asthma. It appears to act with more certainty in adults than in children, and is especially useful in patients in whom the paroxysm is wont to commence in the early hours of the morning. In these cases Dr. Skerritt finds that a dose of 5 to 10 grains of the citrate at bedtime will usually avert the paroxysm, or considerably reduce its severity; but should it fail, the dose may be repeated as soon as the paroxysm awakes the patient. The influence of caffeine in reducing bronchial spasm may also be taken advantage of in acute bronchitis and other respiratory affections. In these conditions, its tonic action on the heart manifestly increases its remedial value.—(*Practitioner*, April, 1895.)

Jaundice following the Administration of Male Fern.—E. Grawitz has frequently observed the occurrence of jaundice in patients who have taken male fern as a vermifuge. He also finds that in these cases there is degeneration and diminution of the red blood corpuscles, and suggests that the jaundice is the result of these changes in the blood, and is not due to any inflammatory condition of the duodenum. The active agent in producing these toxic symptoms is filicic acid, and as this is more readily absorbed when dissolved in fatty oils, the author questions the wisdom of giving male fern in conjunction with castor oil. He also concludes that it is dangerous to employ this remedy when there is cirrhosis of the liver, and quotes three cases in which a fatal result followed the administration of male fern, each patient being the subject of hepatic cirrhosis.—(*American Medico-Surgical Bulletin*, 1st March, 1895.)

Arsenious Acid in the Treatment of Sarcoma.—A well-authenticated case of cure of sarcoma by prolonged use of arsenious acid is reported in the *Semaine Médicale*. The patient was a girl, 23 years of age, and the tumour (a giant-celled sarcoma) was situated at the head of the left fibula. It had been removed on two occasions, and on its recurrence amputation was proposed but refused. The glands in the left groin and

axilla were enlarged. Arsenious acid was prescribed in pills, each containing one-twenty-fifth of a grain. The remedy was continued for two years, as many as ten pills being given daily. At the end of nine months the tumour was one-half its original size, and in the end, complete use of the knee-joint was regained, the swelling of the lymphatic glands had disappeared, and nothing remained of the tumour but a small cavity, studded with healthy granulations, in the head of the fibula.—(*Practitioner*, March, 1895.)

Jaborandi in Rheumatic Lumbago. Dr. A. Robin.—The patient takes in the morning, on an empty stomach, an infusion prepared with 4 grammes of jaborandi leaves, previously macerated for eight to twelve hours in 10 grammes of alcohol, and then infused in 150 grammes of boiling water; he should remain in bed as long as possible. The therapeutic effect is sometimes manifested on the same day, but more often on the next day. A single dose may effect the cure, but if not, the jaborandi may be repeated after a day's intermission.—(*Semaine Médicale*, 1894, xiv, p. 476.)

Agaricin in the Night Sweats of Phthisis.—After several years of careful clinical experiment, Dr. Henry Conklin finds this the most successful of the remedies tested. It can be used for any length of time, and has no disadvantages. Repetition does not weaken its power. Dr. Conklin reports that the remedy stopped the sweating in three-fourths of the cases, and diminished it in one-eighth; in the rest of the cases it failed.—(*Brooklyn Medical Journal*, July, 1894.)

Nature's Polypharmacy. Professor Wm. Carter, of University College, Liverpool, expresses the opinion that in the reaction against the great complexity of the older medicinal formulæ there is danger of passing to the other extreme, and so losing valuable therapeutic benefits. He maintains that an increasing knowledge of the constitution of many of our old established and best approved remedies proves by the safe criterion of experience that some degree of polypharmacy is justifiable, and he defends even the combination of remedies physiologically antagonistic, if these are used in such proportions that the one shall moderate or control without entirely neutralising the activity of the other. In defence of these positions, he instances the frequency with which drugs containing physiologically opponent principles have a more satisfactory action than the pure active principles themselves. Thus jaborandi, Dr. Carter claims, is less likely to cause sickness or to depress the heart than pilocarpine, because of the presence in it of a small proportion of jaborine—a direct antagonist of pilocarpine. In a similar way, he explains the superiority of the infusion of digitalis over the tincture in the treatment of aortic regurgitation, the former containing a larger proportion of digitonin, the active principle which has a dilating action on the small arteries, and which is therefore an opponent of the other active principles contained in digitalis. Opium is quoted as another example of nature's polypharmacy, and of the natural combination of physiological antagonists—viz., morphine and thebaine. After a large practical experience of malarial fevers, Professor Carter has found that in some of the most severe of these, where deep jaundice, high temperature, delirium, &c., seem to shut out all hope, Warburg's tincture has again and again saved the life of the patient, a result, he believes, which would not have been attained by any other means known to us. Should it be his lot to be attacked by one of these terrible remittents, he will "manifest a weak bias towards being cured by Dr. Warburg's polypharmacy, rather than be allowed to die according to the strictest rules of nineteenth century scientific pharmacology."—(*Pharmaceutical Journal*, 9th March, 1895.)

The Treatment of Gonorrhoeal Arthritis.—Mr. Jonathan Hutchinson recommends the following:—Aconite and tincture of the seeds of colchicum if the attack be acute, with alkalies and quinine. If the attack be chronic, quinine is of the utmost importance. In all cases, and in all stages,

counter-irritation should be liberally used. For acute synovitis, this is best secured by the repeated application of large blisters at a little distance from the affected joint; if the case be more chronic, mustard leaves or the capsicum pack should be employed. The last mentioned, Mr. Hutchinson regards as invaluable in chronic joint affections attended by pain. It is applied as follows:—First the joint is well washed with hot water and soap, until the skin is somewhat reddened. Then flannel soaked in tincture of capsicum is applied so as to cover the whole joint, and a good width above and below it. Over this a large sheet of oiled silk is bandaged firmly on. This pack should be kept on for half an hour every night on going to bed. Some persons can go to sleep with it on, but usually it gives too much pain.—(*Archives of Surgery*, January, 1895.)

Memoranda.—*Digitalis* is not as a rule of much value in epilepsy, yet in some cases fits will cease when *digitalis* is added to the bromide. *Digitalis* was a popular remedy for the "falling sickness" in the West of England two hundred years ago (Gowers).—MacMunn recommends the administration of oil of cinnamon in cases of cystitis with foul-smelling urine; it may be prescribed in almond mixture.—Stonham has found the tincture of cinnamon in 1 drachm doses give great relief in cases of influenza.—In the *British Medical Journal* for 30th March, 1895, the following cases are reported as successfully treated by the use of thyroid extract:—Pityriasis rubra, affecting the entire surface in a woman, 72 years of age; ichthyosis, of many years' duration, in a male, the subject of general paralysis; widely-spread psoriasis in an unmarried female aged 26; myxedema, with complete amenorrhœa, in a woman aged 45, the menstrual periods becoming quite regular under the influence of the remedy. In each case the thyroid was administered in the tabloid form.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Conception through an Accessory Tubal Ostium.—Sänger (*Mon. f. Geb. u. Gyn.*, January, 1895) narrates an interesting case in which he performed Cæsarian section on account of the pelvic diameters being lessened by cicatricial masses. These were the result of an ectopic pregnancy which had occurred two years before, and in which either tubal abortion or rupture had taken place, and been followed by hæmatocele and peritonitis, which confined patient to bed for eight months. The peculiarity of the case was that the abdominal ends of both tubes were inextricably infused with the cicatricial inflammatory mass, and conception had occurred through a fimbriated accessory ostium on the left tube having the left ovary close behind it. Incidentally, Sängér mentions that this is his thirteenth Cæsarian section: all the mothers have recovered; all the children have lived excepting one, which died before delivery.—J. K. K.

Treatment of Uterine Myomas.—Schauta (*Wien. Med. Woch.*, 5th January, 1895) has developed his method of operation with the view of avoiding the dangers incidental to myomectomy. These are due—(1) to the deficient resisting power of the patient—anaemia, cardiac degeneration, &c.; and (2) to the liability to peritoneal infection from the opened genital canal. Hence—(1) Schauta usually completes his operation rapidly—in thirty to thirty-five minutes; and (2) he leaves the amputation of the uterus to the last, after sewing the peritoneum to the pedic ball round below the elastic ligature, and then uniting fascia and skin separately. He has had 65 cases with 4 deaths, 2 of which only arose from the operation. He has had 39 cases of castration with 5 deaths, 4 of which were due to sepsis. He has done vaginal extirpation, for cases under the size of two fists, in 25 cases with 1 death.

Hermes (*Arch. f. Gyn.*, Bd. 48, Hft. 1) strongly advocates castration in preference to myomectomy, and gives statistics in support of his plea. Cases suitable for castration, however, he limits to those where the tumour does not go above the navel, or where the weak and anæmic condition contra-indicates the more serious operation. The average mortality of the cases he quotes is 9 per cent. In the survivors the results are: As to shrinkage of tumour, 94 per cent; and as to cessation of bleeding, 78·4 per cent.

Apfelstedt (*Eod. loc.*), in discussing the operative treatment of myomas during pregnancy and labour, insists that the time for operation is at the commencement of labour and by Porro's operation, of which he gives the mortality at 20 per cent—not during pregnancy, the mortality then being 30 per cent; nor by Cæsarian section, of which the mortality is 50 per cent.

Jessett, on the other hand (*Brit. Gyn. Jour.*, November, 1894), thinks that the risks of leaving the pregnancy to term are too great, and that extirpation should be done. In the discussion that followed Jessett's paper, however, the majority of members present agreed that unless urgent symptoms arose, cases of pregnancy complicated with myoma should be left alone.

Hector Treub (*Mon. f. Geb. u. Gyn.*, March, 1895), in myomobysterectomy, uses, for the elastic ligature encircling the cervix, a No. 11 or 12 Nelaton's catheter previously steeped for forty-eight hours in 5 per cent carbolic solution. The knob on the catheter is secured by a fine silk ligature. The ends both of catheter and ligature are cut short, and returned with the stump into the pelvis, the stump having been previously mopped with 2 per cent sublimate solution. He does not sew the peritoneum over the stump, and finds no bad results either from that or from leaving the portion of elastic catheter in the pelvis. Treub has now managed 100 cases in this way with a mortality of 7.—J. K. K.

Pelvic Hæmatomas.—Thorn (*Wien. Med. Woch.*, 2nd March, 1895) concludes—(1) That pelvic hæmatoma is a rare disease—intra-peritoneal occurring in 0·9 to 1 per cent, and extra-peritoneal in 0·1 to 0·2 per cent of gynecological cases. (2) That, contrary to recent opinions, the prognosis is tolerably favourable: in 157 cases only 1 died; suppuration occurred in 3, all of whom recovered; laparotomy was performed in 6, all of whom recovered. (3) That in 28·57 per cent they certainly arise from extra-uterine pregnancy; accordingly, even admitting the possibility of mistake in many cases, other causes than extra-uterine pregnancy must be looked for. (4) That, owing to the favourable prognosis, the treatment should generally be an expectant one. If laparotomy is to be done, it should be deferred as long as possible.—J. K. K.

DISEASES OF THE EAR.

By DR. WALKER DOWNIE.

Post-mortem Demonstration of a Case of Pyæmia following a Latent Otitis Media.—By Dr. S. B. Clark.—The patient was a man aged 21, who on admission to hospital complained of chills, epistaxis, loss of appetite, and general debility, and gave a history of having been sick for six weeks. Malaria was at first suspected, but this was negatived by an examination of the blood; and, following the appearance of severe pulmonary symptoms, the patient died in an exhausted condition.

At the *post-mortem* examination numerous septic foci were found in the lungs, adherent pleura, pericardium, and elsewhere. The right internal jugular vein was found in a condition of suppurative thrombo-phlebitis, and it was occupied by a semi-solid mass of foul purulent material from its commencement at the jugular foramen to the right innominate vein. The lateral and other sinuses of the dura mater were also in a suppurative thrombo-phlebitic condition. In the tympanum and in the mastoid cells were

septic foci, and the veins leading from these to the lateral sinus were found to be in a condition similar to that found in the internal jugular vein.—(*Medical News*, January, 1895.)

A Case of Functional Deaf-Mutism. By W. B. Ransom, M.D.—This is an interesting case, and difficult of explanation. The patient was a miner aged 19, in fair physical and mental condition. Three weeks before being seen by Dr. Ransom he had gone to bed in his usual health, but woke up in the morning unable to hear or to utter a sound. The deafness was so complete that any loud, sudden noise made near him, such as the firing of a cannon, was not heard. In addition, speech had entirely gone; he could neither talk, whisper, nor utter inarticulate noise, and he communicated with his friends in writing. His other special senses appeared normal. He had no paresis, fits, sickness, vertigo, nor tinnitus.

At the end of the week, when seen a second time, his symptoms remained unchanged, and he had, in addition, anæsthesia of the palate and loss of the palate reflex.

The diagnosis was "functional" or "hysterical" deaf-mutism, and as a further test, the faradic current was sent through the larynx by means of an intralaryngeal electrode and one on the front of the neck. The result was a "kick and a yell," and on being told he could now speak, he at once answered, "Yes, I can;" and he heard and was able to reply to questions uttered in a whisper.

Dr. Ransom, in discussing the nature of the seizure, specially refers to the demeanour of his patient being quite the reverse of that of a malingerer.—(*British Medical Journal*, 2nd March, 1895.)

Hysterical (so-called) and Functional Deafness.—By Sir William Dally.—This paper contains details of two cases in some points similar to the foregoing, and the points of similarity in and the differences between them are gone into in detail.

Dr. Dally's first case was a young lady who was found by her friends one morning to be absolutely deaf to all sound. Communications had to be written, to which she made replies as usual, the tone of her voice being unaltered. Six months afterwards she recovered her hearing as suddenly as she had lost it.

His second case is given as an example of true functional deafness. A child, who had become intensely deaf without any middle ear disease, recovered completely after the evacuation of a large number of lumbrici.

The function of hearing had been suspended, and again restored when the sense of irritation was removed; and such a case may be due to the same mechanism as is the suspension of hearing under a violent emotional influence.—(*British Medical Journal*, 16th March, 1895.)

Bacteriological Investigation of the Suppurative Ear Discharge Occurring as a Complication in Scarlet Fever. By Frank Blaxall.—As a result of the examination of the discharge in fourteen cases of suppurative middle ear inflammation associated with scarlet fever, the author gives the following as his conclusions:—(1) That the organism most potent in the etiology of the otitis media of scarlet fever is the *streptococcus pyogenes*. (2) That the less chance there is of contamination from the outer air through the external orifice, the more the pyogenic cocci predominate over the rod-forms; but that, prior to perforation of the tympanic membrane, the occurrence of such organisms is not precluded, since they may ascend from the mouth and air-passages. (3) That, next to the *streptococcus*, the most important organisms are the *staphylococci albus* and *aureus*. (4) That apparently the *diplococcus pneumoniae* of Fraenkel or the *bacillus pneumoniae* of Friedlaender do not play such an important part in otitis media of scarlet fever as in that due to other causes.—(*British Medical Journal*, July, 1894.)

Books, Pamphlets, &c., Received.

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- A Manual of Gynæcological Practice, by Dr. A. Dürrssen; Translated and Edited by John W. Taylor, F.R.C.S., and Frederick Edge, M.D. With 120 Illustrations. London: H. K. Lewis. 1895. (6s.)
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- Transactions of the Sixteenth Annual Meeting of the American Laryngological Association. New York: D. Appleton & Co. 1895.
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THE
GLASGOW MEDICAL JOURNAL.

No. VI. JUNE, 1895.

ORIGINAL ARTICLES.

WHY DOES THE FŒTUS PRESENT BY THE
CEPHALIC EXTREMITY?¹

By ANSTRUTHER DAVIDSON, C.M., M.D.,
Los Angeles, California.

WITH the various theories explanatory of the cephalic presentation of the fœtus at maturity our text-books have made us tolerably familiar. The theories most favoured therein have been:—(1) The physical gravitation theory; (2) Dubois' theory of instinctive turning of the fœtal head towards the outlet; (3) Simpson's theory of reflex or adaptive movements, by which the fœtal ovoid is adapted to the uterine.

The theory of physical gravitation must have a peculiar fascination for some minds, as it never otherwise could have engaged the attention of such investigators as Duncan and Cazeaux. Gravitation, so long as we use the word as a convenient term to apply to forces we do not understand, cannot reasonably be adjudged a factor in the production of cephalic presentation. It is doubtful, indeed, if any vital process is in the slightest degree influenced by so-called gravitation; and I shall, I think, give sufficient reason for assuming that this hypothesis has no bearing on the presentation of the living fœtus. The dead fœtus may possibly be

¹ Read before the Los Angeles Medical Society, 15th March, 1895.

influenced by gravity like any other inert body, which may, in part at least, account for the frequency of malpresentations in cases of premature birth of a dead fœtus.

To Sir James Simpson belongs the credit of suggesting the apparently most rational and generally accepted theory of foetal presentation. This theory embodies three main factors as the cause of cephalic presentation:—(1) The shape of the normal foetal ellipse at full term; (2) the shape of the cavity at term; (3) the automatic or reflex movements of the fœtus, which cause it to assume a position conformable to the uterine shape. It is alleged as a strong proof of Simpson's theory that it explains how, previous to the sixth month or under morbid conditions at full term, the fœtus presents abnormally.

Before the sixth month the cavity of the uterus is spherical, and contains a relatively large amount of amniotic fluid; but, as the time of birth approaches, the quantity of fluid is proportionately diminished, the uterine shape becomes ovoid, and the fœtus is supposed to assume a shape conformable thereto, with the breech as the larger end of the foetal ovoid above, and the head in the pelvis. The frequent presentation of the breech in hydrocephalic children Simpson believed to be due to the enlarged head forming the larger end of the ovoid automatically adapting itself to the larger end of the uterine ovoid; and he further asserted that the reason why all hydrocephalic children did not present the breech in like manner was because the enlargement of the head frequently did not take place until the later months of pregnancy, when the fœtus had already assumed its normal position.

This is a pretty theory, and seems to fit all cases, normal and abnormal; but a careful investigation of the forces in evidence would seem to throw some doubt on its applicability even in the normal condition.

It is assumed, then, that the uterus at term becomes pear-shaped or ovoid, and the fœtus adapts itself thereto. It is reasonable to suppose that the uterus, like any other hollow viscus, if inflated, would assume this shape; but, so far as I understand the process of gestation, the uterus does not assume this shape spontaneously, and the fœtus adjusts its presentation to conform thereto, but, on the contrary, the uterus (if the fœtus presents normally) is compelled by the position of the fœtus to assume this ovoid shape. That this is so is demonstrated by the large number of cases in which the amniotic fluid is so scanty that it can have no possible effect in determining the shape of the uterus; and the latter, lying in

close conformity to the foetus, must be wholly shaped by the position of the foetus. Instead of the uterine shape having any effect on the foetus, it must be quite the reverse. Even at the sixth month, in cases of dry labour, the amniotic fluid is frequently too scanty to allow of free movement of the foetus; yet it is a notorious fact that almost all cases of scanty amnios are head presentations. According to Simpson's theory, we should expect that the foetus in such a case of scanty amnios, where there is so little room for foetal movement, would (as a rule) present abnormally, as it would be unable to change the position in which it became fixed in the earlier months.

The frequency of malpositions in hydramnios is in part accounted for by the excessive quantity of fluid allowing easy displacement during uterine contraction; and probably, too, the uterine contractions, on account of the distension, are in part irregular. P. Müller records an instance where the foetus changed from breech to head presentation six times in five days, and with such suddenness as to shock the mother. These sudden changes of position are probably not unusual, and can scarcely be explained by the "adaptive or reflex theory."

It has been asserted by some writers that the cephalic extremity forms the apex of the so-called foetal wedge, and that the head therefore naturally occupies the position it fits most easily. The actual facts are against this assertion, however. The pelvis of the foetus when presenting is much the smaller end, and if nature had as much consideration for the individual mother as for the type, all children would be carried with the breech as the presenting part in the pelvis. Normally, except in primiparæ, the foetal head lies in the iliac fossa. If the presenting part were always the breech, this part could even in multiparæ be carried in the pelvis, and give more freedom of movement, increased comfort, with perhaps a little more external elegance to the mother. In breech presentations only, it seems to me, is the foetus best adapted to the pelvic cavity, yet adaptation to its environment does not seem to be the chief "purpose" of nature during gestation.

After everything is conceded in favour of the different theories of "gravitation" and "adaptive action," these theories, in the circumstances above referred to, appear somewhat inadequate; and, before we consider any new idea on the subject, I wish to draw your attention for a brief space to the consideration of this question from an evolutionary stand-

point, as therein I believe lies the *rationale* of cephalic presentation.

In elucidation of this subject I have studied the development of the lower forms of life, especially of the aculeate *Hymenoptera* (bees and wasps), as these are easily observed in all stages of life. In this study everything I have observed seems to indicate that the sole "purpose" of the forces of evolution in insect life, as in the higher mammalia, is the perpetuation of the species. We shall take for illustration our common carpenter bee—*Xylocopa orpifex*—as the cells constructed are so large, and in such material, as to render the manner of their construction more apparent. This bee drives a tunnel along the grain of the wood for 6 to 12 inches or more in depth, with laterals of varying depths. In these the parent bee stores a waxy mass of bee food, lays an egg thereon, seals up the cavity with a disc of agglutinated wood chips, which forms the base of the next cell above, and so on until there may be half a dozen or more cells, according to the depth of the tube, piled on one another. Now let us follow the egg in the process of development. In three or four days the egg bursts its membranous shell, a tiny but voracious larva emerges, and in a short space of time the food stored for its use is all consumed. The larva, at first small, moves freely enough in its cell, but as it grows larger this freedom is impossible for sheer lack of lateral room. When it has attained to nearly full growth, and has all its food consumed, being still active, it turns its head towards the outlet, sinks into the somewhat torpid state characteristic of most larvæ, and, while passing through the pupal stage, retains this position till fully developed. When fully matured, and in a condition to break its way forth to the outer air, we see it presents by the cephalic extremity. Almost all the *Hymenoptera* larvæ execute the same movements, and seem all to turn their heads towards the natural outlet. I have examined literally hundreds of nests of bees and wasps which tunnel in stems, earth, sand, or rocks, and have, on what I think adequate premises, formulated the following conclusions:—

1. That the *Hymenoptera* larvæ before quiescence normally assumes an attitude that brings the head towards the external opening.

2. That this rule is nearly universal, not more than 1 to 2 per cent of those examined presenting by the tip of the abdomen.

3. That when the eggs are deposited in series in one

continuous tunnel, those nearest the point of exit pass through their different stages more rapidly and escape first.

4. That the lower cells are generally occupied by the males. Now, Simpson's and other theories, if they are to have any actual value, must apply in general terms at least to lower animals and insects, as well as to the human being. Just as surely as the smallest planet acts in conformity to the general laws formulated by Newton, just so surely does the minutest animal or insect act in conformity with the general laws that govern all animal existence.

Applying the physical gravitation theory to the explanation of the cephalic presentation in insects, what do we find? It might reasonably be supposed that the cells they occupy being generally set vertically might influence the ultimate position of the larvæ, but I cannot find it so. I have found them in every conceivable position, vertical, horizontal, inverted, and at every angle, and yet under all those conditions they assume the normal position of cephalic presentation. Gravitation, then, can scarcely have anything to do with their position, and the less so that they are not immersed in any fluid medium. The possibility of reflex or adaptive movements having any influence on the position of the *Hymenoptera* larvæ seems very improbable. If, as frequently happens, the old cell of some bee is occupied by a tiny mite of a wasp, the larva of which has an excessive amount of room, the resultant position is the same as if it filled the cavity, and depended on adaptive or reflex movements against the sides of its chamber. The adaptive movements that a small larva or pupa could, under these circumstances, execute would be about as effectual as the struggles of a foetus on the floor of this room. The cells are usually so compactly partitioned that it seems impossible that the aerial temperature can have any determining effect on the larval position. No purely physical law can explain the ultimate position of the larva. No known theory of reflex or adaptive processes seem adequate to the case. The explanation lies, I believe, in natural selection.

Ages, we presume, have elapsed since the *Hymenoptera* first appeared, and now only those which have acquired through inheritance the habit of presenting the cephalic extremity have survived, and this habit is so pronounced and confirmed, that we cannot but conclude that it has been inherited for many ages. Now and then we find a larva presenting by the tip of the abdomen instead of the head. In many instances the insect would have room to turn, or it might cut its way out laterally, as they frequently do; but if,

as is commonly done, they follow on in the direction in which the head is turned, they may gnaw their way till exhausted and then die of starvation. Given a race of bees in which the larvæ have a tendency to present abnormally, and as a natural consequence of their inability in most of these instances to find their way out of their cells, they would in a few years have ceased to exist. Nature here allows of no nonconformity with her prescribed, or, more properly, evolved laws; she inflicts but one punishment—the transgressor dies. Hence we see so few abnormal presentations among these insects, those types which tended towards irregular presentation having been speedily eradicated. In the human species similar eliminating agencies have been long in activity, and in the evolution of the race only those presenting by the cephalic extremity have survived.

In the early, or more properly speaking, savage state of man's existence, which, considering the comparatively short time he has been civilised, is practically his whole existence, nature in gestation and parturition has had full sway. Among savage tribes it is easy to perceive how, in a few generations, all mothers having a tendency to abnormal presentation would, with their progeny, succumb. Of cases presenting in the third and fourth positions, and left to nature, or the even less tender mercies of the medicine man, a large percentage of those failing to rotate must have inevitably caused the death of both mother and child. In breech cases the infant mortality from prolapse of the cord and other circumstances would necessarily be very large, and in transverse presentations the mothers too would die.

The cephalic presentation, whether at first an accident or an inheritance from the lower forms of life, as seems the more probable, is instinctive in the fœtus now. A faculty so firmly inherited by the lowly organised larvæ of the *Hymenoptera* can scarcely be logically denied to the human fœtus. The fact of the fœtus generally presenting in the first and third positions instead of the second and fourth, might naturally be expected. The third is the complementary of the first, and frequently rotates to that position. The fourth, on the other hand, seldom rotates into the second, which naturally makes the second much rarer than the first. This is probably the reason why the second is comparatively so rare, for there is apparently no other evident reason why the second, which is as normal to the mother as the first, ought not to be as common. That the fœtus in the earlier months of pregnancy should tend to present abnormally is not to be

wondered at, as we have good reason to suppose that, like the lower forms of life in the like period, it is frequently changing its position, and it matters not in the evolution of the race what position it assumes until the actual commencement of labour. Malpresentations in cases of hydrocephalus, spina bifida, and other diseased conditions of the foetus might reasonably be expected according to this hypothesis, as by this malformation the foetal inheritance is robbed of the certainty of perfect action, and the manner of presentation becomes in consequence purely a matter of accident.

Traces of man's descent are nowhere more apparent than in the construction of the foetus, and I shall here speak of one peculiarity in the foetal development that is usually overlooked, though it has a considerable bearing on the question under discussion. The *attitude* assumed by the foetus in utero is one that is assumed at a very early stage, when so small that the question of pressure or adaptation to space can have no possible influence. This tendency of the foetus to assume the ovoid shape occurs prior to the development of muscles, and this seems to be the attitude assumed by all animal life in its early stages down to the insectæ. The larvæ of the bee and wasp assume this shape immediately on emerging from the egg, and retain it in some degree when disposed at rest through all stages of their growth. Not only do they assume this shape, but they almost invariably (unless forced to stand vertically) lie curled up either in the lateral or in the dorso-lateral position; if, in the pupal stage, they usually assume the dorsal, turn them over, and if in an active state they will resume the dorsal position again. The human foetus in utero has the same habit inherent in it. In the normal position in utero with the mother in the erect posture, the foetus is nearly horizontal, and lying in the lateral or dorso-lateral position. The habit of assuming the ovoid when at rest is an inheritance that clings to man throughout his whole existence. It is most apparent in the young child, who, when left alone, will sleep on the right side with the face half turned towards the pillow. Man, while his will is capable of inhibiting his actions, may assume other postures wherein to rest, but where his will is removed by injury to his cerebral lobes, he almost invariably returns to the ovoid of prenatal life. In the sleep of the aged, when in the natural course of events nature inhibits the reasoning faculties, we see the same reversion to the primitive attitude. So confirmed a habit only the theory of evolution can satisfactorily explain.

The theory of evolution affords a satisfactory solution of

still another problem. There is good reason for the belief that the period of gestation of the male child is longer than that of the female, but why it should be so has never, I think, been satisfactorily explained. It cannot be supposed that this has anything to do with the comparatively large size of the male at birth, as he bears no larger ratio to the weight of the adult than does the female at birth. The time of parturition must likewise be independent of the size of the fœtus, as the male being the larger would almost invariably be carried a shorter time in utero; whereas, as we have seen, it is quite the reverse. For the cause of this we must, as with the vestigial anatomical peculiarities of man, search the records of evolution.

In the *Hymenoptera* the male is much longer in arriving at maturity than the female. When a row of cells is built in a narrow tube such as the *Osmia* use, I have commonly found in a row of ten or twelve cells but one or two males, and these in the very lowest cells. The lowest cells are the first completed, and as the gathering of material for the cell and its contents must consume considerable time, it necessarily follows that those first constructed are some weeks older than the last, yet we find those last deposited are the first to emerge; were it otherwise, the lowest would destroy all the others in making their exit.

This marvellous result has been attained by natural selection, the males are polygamist, least necessary in the struggle for existence, are fewer in number, and Nature, true to her ultimate purpose, favours the sex on which the preservation of the race mainly depends.

In the prehistoric ages the disproportion of the human sexes may have been more unequal, and the earlier gestation of the male might be more useful than it could be now, as times are changed; man has become, through force of circumstances rather than from inherited instinct, a monogamist, and the prolonged gestation of the male must, with the *caput cæcum*, be classed with the inconveniences we inherit.

These, Gentlemen, are my views on a subject that has been frequently commented on from the days of Aristotle until now. It seems highly probable that the subject has been discussed from this point of view by other seekers after light, but I have been unable to find any reference to their work in the material to which I have access. In any event, the observations given you have the merit of being individual, and I think I am not asserting too much when I affirm, that by natural selection only has the cephalic presentation become the normal one for the higher mammalia.

PRIMARY MALIGNANT DISEASE OF LIVER (?).

By DUGALD MITCHELL, M.D., RENTON.

EARLY in September last I was consulted by a man, 55 years of age, who complained of persistent sickness, with frequent vomiting, pain in the epigastrium, anorexia, progressive emaciation, and increasing debility. The vomiting, which came on often while he was eating, had persisted more or less, and with increasing frequency, throughout the summer, but he was able to continue at work as a hammerman till early in August.

Till within the last five years my patient had followed, from early manhood, the occupation of fireman on board foreign going ships, and during all these years he went in for frequent bouts of hard drinking, as occasion offered. Except for what he called dyspepsia, to which he had often been a victim, he enjoyed, however, good health. For this condition he was under treatment for a considerable time, six years ago, in hospital in Wellington, New Zealand, but without receiving much relief, and in consequence of his sufferings he gave up the sea, though without much benefit to his stomach, which continued to trouble him at frequent intervals, particularly in the way of flatulent distension and general uneasiness, with sickness especially during the last three years.

Examination of the abdomen, when first he came under my observation, revealed little more than moderately increased resistance in the epigastrium. The hardness, however, steadily got more definite during succeeding weeks, and as his general condition was also worse, I sent him on 20th October to the Western Infirmary, where he remained under Dr. M'Call Anderson's care for a period of six weeks. Dr. M'Lennan, House Physician, informs me that during his residence in hospital, "sickness after food was not a prominent symptom, but he complained of a sick feeling in his abdomen, with general weakness and great anorexia. The stools never contained blood, and his urine was healthy. Physical examination of the chest on admission revealed nothing abnormal. The hepatic dulness was $6\frac{1}{2}$ inches in both nipple and axillary lines, and 6 inches in the middle line. On 30th October the three measurements had increased to 7 inches respectively. He had been much troubled with constipation during his stay in hospital."

When I saw him on 4th December—i. e., on the third day

after his return from the hospital—I found that marked enlargement of the liver had occurred in the interval, and, as emaciation had correspondingly progressed, it was easy to determine that its surface was very irregular. He complained much of pain, which he described as of a constant gnawing, aching character, while, on the other hand, the sickness was not so trying as when he had at an earlier period been moving about. Though sallow in complexion, jaundice was never marked. The stools, however, from the last week in December became clayey in appearance, and continued so till his death on 6th February. At no time did the motions contain blood. Constipation was somewhat troublesome latterly, but mild medicines sent him to stool with little warning. In the latter weeks particularly, his urine became loaded with lithates, and, on standing, presented a red, jelly-like appearance. Early in January hæmatemesis became and continued to be a prominent symptom—a condition which may have been mainly induced by his taking brandy, without my knowledge, to the amount of two and a half bottles per week for a period of some seven weeks. Troublesome cough, with some bronchial catarrh, developed about the middle of January, and during the last three days of his illness ascites, accompanied with very scanty secretion of urine, supervened.

On his death on the 6th February, I got permission to make a *post-mortem* examination, sufficient to verify the diagnosis, and to determine the case to be one of primary malignant disease of the liver. The peritoneum I found to contain a considerable quantity of ascitic fluid. Both stomach and spleen were free from disease, as also were the other abdominal organs, so far as could be made out from a simple handling of them. The surfaces of the liver presented a markedly nodular character all over, the nodules exhibiting very effectively the characteristic cancer navel, or cupped appearance. Round in shape, the tumours varied in size from very small ones to one fully $1\frac{1}{2}$ inch in diameter, the latter showing prominently on the posterior aspect of the left lobe—a fact which may account by its presence for some of the troublesome stomach symptoms. The tumours presented a whitish-yellow appearance, while the intervening substance had almost entirely lost its normal liver colour, and was for the most part of an ashy-grey hue. In consistence the organ as a whole felt like moderately firm cheese, and presented a similar resistance to the knife. The term *scirrhus-encephaloid* may therefore, I imagine, be appropriately applied to it.

CLINICAL MEMORANDA,
BEING SELECTED CASES FROM THE WARDS OF

DR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY W. ERNEST THOMSON, M.D.)

XIV.

29. Case of Pernicious Anæmia—Great Improvement—Death from an intercurrent attack of Influenza, with Pneumonia.

R. F., aged 44, a clerk, was admitted into Ward II on 30th November, 1894, complaining of nervousness and weakness, accompanied by loss of colour, of ten years' duration.

His parents both died advanced in years—the father at 68, and the mother at 78, but of ten brothers and sisters, five died in infancy; one sister died of pleurisy, and another after childbirth; so that besides himself only two are now alive out of the ten.

Regarding his own health and habits, he had no illness that he remembers before the present one. He is a bachelor, a total abstainer, and although no history of venereal trouble can be obtained from him, he refers mysteriously to youthful indiscretions. Beyond this vague statement, he cannot be got to admit anything.

The following is the history of the illness, somewhat ramblingly given:—

About twelve years ago, when employed in an unhealthy, damp office, in close proximity to an offensive privy, he suffered from a feeling of numbness in the feet and legs. There was no motor weakness, but the numbness spread upwards over the trunk and head. He could not get warm in bed. About this time, also, his digestion was impaired; he was overworked, and became very depressed, and was overmastered by a feeling of business responsibility. He worked on for four or five years, getting though his business somehow or other, and then he noticed, for the first time apparently, that he was getting weak and very pale: he suffered now from severe neuralgia. The climax arrived two and a half years ago, when he was obliged to give up business because he could neither compose nor write a letter. He says that at this time the moment he attempted to settle down to do anything he was overcome by "excitement." Latterly there has been dyspnoea on exertion. He has not lost much flesh.

On examination, the principal points brought out were:—

1. Pallor of skin and mucous membranes.
2. Great diminution in the percentage of hæmoglobin, associated with an equivalent reduction in the number of corpuscles.
3. Cardiac murmurs and venous hum on both sides.
4. Retinal hæmorrhages.

1. *The skin* of the face presented somewhat the lemon-yellow tint, which has been described as occurring in this disease. The hands had a waxy-white appearance.

The conjunctivæ and lips were very pale.

2. According to the hæmocytometer and hæmoglobinometer in use in these Wards, the *corpuscles* were 1,410,000 per cubic millimeter, and the *hæmoglobin* 28 per cent.

3. *Systolic murmurs* were audible in the whole cardiac area, and in the vessels of the neck. Venous hum was particularly marked on the right side.

4. *Ophthalmoscopic examination* revealed pallor of the disc and fundus, with well-marked hæmorrhages, some round, others flame-shaped, in the right retina.

Although, as will afterwards appear, the ultimate result was death through what may be fairly described as an accident, the progress of the case under treatment was sufficiently interesting.

Treatment began on 1st December with regulation of bowels, a dose of tincture of calumba, and, of course, rest in bed. His weight was 7 st. 13½ lb., and (on 4th December) the hæmoglobin was 28 per cent, and the corpuscles 1,410,000 per cubic millimeter.

On the 5th of December he was ordered half an ounce of fresh bone marrow, daily, in a sandwich. The marrow was increased to 1 oz. daily two days afterwards. On the 9th December the hæmoglobin was estimated at 24 per cent, and the corpuscles at 1,300,000, the weight being 8 st. 2½ lb.

On 11th December arsenical treatment was commenced, and the order given was that he should have 5 minims of Fowler's solution, without lavender, hypodermically, once daily; and also 5 minims Fowler's solution thrice daily by the mouth. The marrow was continued. On the 15th December the weight was 8 st. 2¾ lb., and on the 20th the hæmoglobin was estimated at 24 per cent, and the corpuscles 1,200,000.

On the 28th December the patient's condition practically remained stationary: the arsenic was increased by 1 minim

daily, hypodermically, until he should be having 10 minims daily. On the 29th the weight was 8 st. 8½ lb.

On 4th January, 1895, the 10-minim hypodermic limit was reached, and the Fowler's solution, by the mouth, increased by 1 minim daily. He was now taking a total of 25 minims of liquor arsenicalis daily. On the 5th his weight was 8 st. 11 lb., and on the 11th the hæmoglobin was estimated to be 40 per cent, and the corpuscles 2,010,000. On the 12th the weight was 8 st. 11½ lb.

An improvement had now obviously set in, shown not only by the examination of the hæmoglobin and corpuscles, but by the whole appearances and sensations of the man himself. The marrow was now stopped. On the 19th the weight had now fallen to 8 st. 9 lb.

By the 21st January the total daily dose of Fowler's solution was 28 minims. On the 26th the weight was 8 st. 10 lb. On the 27th the hæmoglobin was 42 per cent, and the corpuscles 2,890,000 per cubic millimeter.

On this latter day the dose had to be reduced, on account of symptoms of arsenical poisoning, to 20 minims daily. Under a continuance of this dose improvement was rapid, as may be seen on reference to the accompanying table. Not only the rise in the percentage of hæmoglobin and the number of corpuscles indicated this, but also the improved appearance and feeling of well-being of the patient.

Date.	TREATMENT BY ARSENIC.	Hæmo- globin.	Corpuscles.
1894.		Per cent.	
Dec. 9	Before arsenical treatment,	24	1,300,000
" 11	Hypodermically, 5 minims Fow- ler's solution daily,	24	1,200,000
" 20	By the mouth, 5 minims Fowler's solution thrice daily,		
" 28	Total, 20 minims.		
" 28	Hypodermic increased by 1 minim daily.	24	1,200,000
1895.			
Jan. 4	Hypodermically, 10 minims, } Total, By the mouth, 15 minims, } 25 minims.	40	2,010,000
" 11	Hypodermically, and by the mouth, 28 minims daily,	42	2,890,000
" 21	Hypodermically, and by the mouth, reduced to 20 minims daily.	42	2,890,000
Feb. 10	Do., do., do.,	47	3,100,000
" 17	Do., do., do.,	48	3,400,000
Mar. 3	Do., do., do.,	50	3,400,000

Most unfortunately, however, just as the full benefit of the treatment was beginning to be appreciated, influenza attacked him, pneumonia set in, and he died on 8th March.

30. *Case of Cerebellar Disease.*

M. C., age 17, was admitted into Ward VII on 18th February, 1895, complaining of stiffness in the legs, and frequently recurring headache, of two years' duration; and of a tendency to fall backwards, of about six months' duration.

Neither the family nor the personal history have any special bearing on the case.

The illness commenced two years ago with gradually increasing stiffness, and a peculiar feeling in the frontal region, which she describes as "dizziness." She declares that when coming down stairs it was difficult to avoid falling *forwards*. (This sensation of falling forwards was probably the result of exaggerated attempts to overcome the tendency to fall backwards.) She has also suffered from headaches, so severe at times that she was compelled to leave her work and go home. They came on markedly after exertion, occasionally when at rest, and were generally relieved by purgatives. Early in the illness she noticed tremor of the upper extremities on exertion, so that in carrying a cup of tea she required to exert herself to overcome both the tendency to fall and the tremor. She has noticed, also, some tremor of the lower extremities, but it is not marked.

The gait is peculiar. She walks in a very hesitating manner, and is inclined to fall backwards and towards the right side, saving herself by stepping back with the right foot at about every alternate step. The whole appearance of the body suggests an effort at balancing, and although it is quite obvious that the real tendency is to fall backwards, the patient says that if she attempts to hurry, she feels she must fall forwards. With the feet close together, and even when allowed to stand as she likes, she at once falls backwards on closing the eyes.

Reflexes.—The knee-jerks are, if anything, slightly exaggerated. There is a slight tendency to ankle clonus.

The Speech.—There is an almost indefinable hesitancy in the speech, which has been noticed only since the illness began.

The Optic Nerves.—There is double optic neuritis of the lighter type. The effusion is small in amount, but unmistakable. There is no diminution of visual acuity complained of.

The only *treatment* adopted was absolute rest in bed, with cod liver oil and syrup of phosphorus.

Progress.—By 6th March the patient was able to walk some distance up the ward without support, and with very little tendency to fall backwards.

On 12th April still further improvement was evident. The gait was rather slipshod, but almost free of inco-ordination. The neuritis was subsiding.

She was dismissed on 25th April at her own request. Scarcely any abnormality in the gait was then to be noticed.

The treatment adopted in this case was based upon a suspicion that the disease was tubercular in its nature, and the improvement which resulted seems to be in the direction of corroborating the accuracy of this view.

DISCHARGE OF TYMPANIC OSSICLES IN SUPPURATIVE MIDDLE-EAR DISEASE.¹

By J. GALBRAITH CONNAL, M.B., C.M.,
Assistant Surgeon, Glasgow Ear Hospital.

J. W., æt. 7 years, schoolboy, was seen for the first time on 5th December, 1894, for deafness and discharge of "matter" from both ears of some few weeks' duration.

The history given is that twelve weeks ago the boy took scarlet fever, and had been removed to the hospital, from which he had been dismissed two weeks before this date (5th December), when it was noticed that he was deaf, and that there was a purulent discharge from both ears.

His mother says he was always a strong healthy boy till he took scarlet fever. He had bronchitis when a baby, and measles when 5½ years old, but got over both troubles fairly well. On further questioning the mother, it seems that the boy, even before the attack of scarlet fever, had at different times complained of earache, when there would be a slight discharge of "matter" from the ears for a few days; but, as he always got better, no notice was taken of this, and no treatment was adopted.

He had evidently been very ill when in the Fever Hospital, as on two occasions his parents had been urgently summoned

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society, 22nd February, 1895.

to see him, and there are three cicatrices in the neck where abscesses have been opened.

The patient is a pale, nervous little fellow, absolutely deaf, and communication with him has to be carried on by means of writing. He does not hear a large hand-bell rung just behind him, nor even when one shouts into his ear. His hearing was further tested by means of a large tuning-fork applied over the forehead, over the mastoids, and on the teeth, but with negative results.

On examination, it was noticed that there was a profuse purulent discharge in the external auditory canal of both sides, and syringing brought away the malleus and the incus from both ears. In the canal of the right ear there was also a slight scaly sequestrum, which was removed with the aural forceps. There was no trace of the stapes to be found in either ear. The tympanic membrane in the right side was almost entirely destroyed, only a vestige of it being seen at the posterior and upper borders. On the left side there was a large perforation in the anterior half of the membrane. The discharge was slightly foetid, and a bacteriological examination showed the streptococcus.

The treatment adopted was syringing out the ears with warm boracic solution. In about a month the discharge had ceased, and a cicatrix had formed, closing up the perforation in both ears.

The points which I consider of interest in the case are—the symmetrical character of the lesion and the rapidity of the destructive process, exactly what one sometimes meets with in ear disease resulting from scarlet fever. It will be noticed that the ossicles are quite perfect anatomically, and not in any way affected by the inflammatory process, even showing in both specimens the os orbiculare on the long process of the incus. It would appear as if the inflammatory process had been so rapid as to cause a necrosis of the soft parts, disarticulating the bones, but not having had sufficient time for any destructive action on the ossicles themselves.

Here the suppurative inflammation was remarkably amenable to treatment—in marked contrast to many other cases from the same cause, which are peculiarly obstinate, the suppuration persisting for a long time despite every care.

Another point is the total loss of hearing, but it must not be understood that I think that this was due to the loss of the ossicular chain. I would be inclined to attribute the deafness in his case to a coincident labyrinthitis.

The general experience in suppurative inflammation of the

middle ear is that the incus seems to be the ossicle most frequently affected; next in frequency comes the malleus, and especially its handle; the stapes is the least liable to be affected by caries, or to be exfoliated.

I have a specimen here showing the stapes from another case of otorrhœa, also resulting from scarlet fever, where both tympanic membranes had been entirely destroyed. The girl was totally deaf. In this case the discharge was very persistent.

PUBLIC HEALTH.

INVESTIGATIONS INTO THE CONNECTION OF THE PAISLEY WATER SUPPLY WITH THE EPIDEMIC OF ENTERIC FEVER IN THE AUTUMN OF 1893.¹

BY THOMAS MACALPINE, D.Sc., PAISLEY.

FOR the history of this epidemic I am principally indebted to Dr. Archibald Donald, the Medical Officer of Health for the Burgh of Paisley, who has kindly placed at my disposal his "Report on the Enteric Fever Epidemic," which he addressed to the Board of Supervision, Edinburgh, in reply to their request for information. It is a most able document, and clearly proves that the epidemic was entirely due to the Paisley water supply.

Before passing on to this Report, kindly allow me to say that personally I consider that it is a matter for sincere congratulation that in Paisley we have as a medical officer one who so quickly and fully rose to the requirements of this investigation; and now that we have incontestable proof of the contamination, there is every reason to believe that had our Council, as Local Authority, acted upon the recommendations which were made to them by Dr. Donald, the force of the epidemic would have been stayed at a much earlier period.

The history of the origin and extent of the epidemic will be best appreciated by quoting Dr. Donald's own words:—

"On the 15th of July we received three notification certificates of children suffering from continued fever in an ice-cream vendor's family, and recognising the danger that

¹ Read before the Microscopical Society of Glasgow, on 16th April, 1895.

might arise from this source (ice-cream), these cases were early removed to our hospital, and efficient disinfection carried out; but in spite of these precautions, the notification certificates were daily augmented, until, at the end of the first week, we had received information of no less than forty-one cases. The fact of this sudden development of the disease suggested to our minds the possibility of the ice-cream being the medium by which the infection was transmitted. This idea was considerably strengthened when we learned that no less than 30 of these cases had partaken of the so-called creams supplied from this shop. A sufficient period had not elapsed which would enable us to conclude that the disease was disseminated from the first three cases in the ice-cream manufacturer's family; but, on inspection of the premises, we found that one of the children had been ill for the previous six weeks, during that time being frequently medically examined. I examined this patient, and had little hesitation in certifying that she was still suffering from enteric fever, an opinion which was corroborated by the visiting physicians to the Infectious Diseases Hospital. The dwelling-house is situated above the shop, and for some time the girl had been going between the house and shop while suffering acutely from the intestinal symptoms. She was at once removed to the hospital, careful disinfection and other precautions again instituted, but notwithstanding this the cases still rapidly increased. At the monthly meeting of the Public Health Committee, held on 7th August last, I submitted the following report:—

“‘Since the epidemic commenced until the end of the month 84 cases have been reported. Of these, 46 have the ice-cream connection; how many of the remaining cases arose from excremental infection from the earlier cases it would be difficult to say.

“‘During the present month there is no diminution in the number of cases, and while there is little room for reasonable doubt that the conditions which I have mentioned in this report are sufficient to cause a wide-spread epidemic, the possibility of other infected channels has not been lost sight of.’

“‘You will notice that in the last paragraph of the foregoing report I say that ‘the possibility of other infected channels has not been lost sight of.’ At this time we felt, from the rapid manner in which the cases were occurring over a widely distributed area, and at a time when the question of secondary

infection was not possible, that there was some other influence at work, such as a polluted milk or water supply. The milk supply was readily excluded, it being so varied; therefore the water supply was looked to. We had several samples of water taken, and submitted to Dr. Clark of Glasgow, the analyst for the burgh, who reported on the various specimens (omitting detailed analyses) as follows:—

“*Sample marked No. 28*, taken from well at No. 18 Lady Lane (High Level) on 4th August, 1893.—This water was fairly good in colour, and the results of my analysis indicate that it is sufficiently pure for domestic purposes, and, as far as can be determined by analysis, it is free from contamination with sewage. It contained, however, a little matter in suspension, which was found by microscopical examination to consist for the most part of vegetable *débris*. It is very important in cases where water is suspected to contain the germs of disease that it should be most carefully filtered; and, although I cannot say that there is anything in this water calculated to promote or aggravate enteric fever, I would recommend more efficient filtration as the best means, in my opinion, of rendering the water safe.”

“*Sample marked No. 29*, taken from well at No. 77 George Street (High Level) on 4th August, 1893, bore a similar report to Sample No. 28.

“*Sample marked No. 30*, taken from well at No. 58 Causeyside (High and Low Levels) on 4th August, 1893.—This water is of good colour, and quite free from matter in suspension. The results of my analysis indicate that it is in every respect suitable for domestic purposes, and I am of opinion that it contains nothing which is calculated to promote or aggravate enteric fever.

“*Sample marked No. 31*, taken from well at No. 4 Mossvale Lane (Low Level) on 4th August, 1893.—This water is in every respect similar to No. 30, and, in my opinion, it is equally pure and suitable for domestic purposes.

“*Sample marked No. 32*, taken at inlet of water shed to Rowbank Reservoir on 4th August, 1893.—This water was very brown in colour, and contained a considerable quantity of reddish-brown matter in suspension, consisting chiefly of vegetable *débris* and a few bacteria. My analysis indicates the presence of more organic impurity than is usually found in good drinking waters, which is probably due to the peat or mossy matter which it contains; but I am of opinion that it requires to be carefully filtered before it can be considered suitable for domestic use, especially if there is the slightest suspicion of contamination with the germs of enteric fever.

"Sample marked No. 33, taken at mouth of pipe flowing into Rowbank Reservoir from Camphill Reservoir on 4th August, 1893.—The water was very brown in colour, and contained a little vegetable *débris* in suspension. The results of my analysis indicate that it resembles No. 32 closely in character and composition, and I am of opinion that it should be carefully filtered.

"It is perhaps necessary to explain that the burgh is wholly supplied by gravitation water, divided into two systems known as the high and low levels, the former being drawn from Camphill and Rowbank Reservoirs, and the latter from Stanley, Glenburn, and Harelaw Reservoirs; but these are capable of being connected, and during the last summer frequently were so, rendering the water supply practically common.

"In support of our belief that polluted water played an important part in the production of such a wide-spread epidemic, I refer you to the following report submitted to my committee for the month of September:—

"*Report for September, 1893.*—In connection with the enteric fever epidemic, no less than 113 additional cases have been notified, increasing the total to 349 cases, since the epidemic commenced in July. At our weekly meetings I have from time to time laid before you the progress of the epidemic, and the efforts being made to determine the circumstances which have caused and influenced the spread of the disease.

"You will remember early in the outbreak we were so far successful in tracing a number of cases to ice-cream supplied from a particular shop, and also sold over the town from a cart. So conclusive was the evidence that, in one week, 30 out of 41 cases reported had partaken of this infected ice-cream. The experience we gained would naturally suggest the urgent necessity of these ice-cream establishments being controlled by legislative measures similar to those which regulate dairies. This would prevent, to a great extent, a repetition of danger from this particular source. Here we had to deal with a purely localised outbreak produced by a local circumstance; but almost simultaneously we were receiving information of other cases occurring in different districts considerably apart, and further, at a time which rendered the probability of direct transmission of infection from the primary cases impossible.

"The various channels by which this sudden increase in the number of cases might arise were thoroughly investigated. School connection offered no solution, nor did the suggestion that the drains were at fault; because, after the heavy rainfalls

we have recently had, the number of cases notified markedly increased, a feature certainly antagonistic to this theory.

"It therefore became more and more apparent that there was some common source of infection, such as a contaminated milk or water supply. Any milk connection was readily excluded, the distribution of the disease being negative to this. Suspicion naturally drifted in the direction of the water, and this idea gained considerable ground when we learned that in Johnstone, Elderslie, Linwood, and other districts which receive our water supply, enteric fever was very prevalent.

"The total number of cases up to the end of July amounted to 287, which had been increased to the large number of 742 up till the end of last month.

"I do not for a moment doubt the possibility of some cases being secondary ones. Still, making due allowance for all this, the sudden increase in the number of cases over such a widely distributed area could not be explained in this way, but pointed strongly to some common source not yet discovered. With your approval, we had various samples of the water submitted to Dr. Clark, and the reports of his analyses are now before us. So far as the water is chemically concerned, it may be said to be good, and fit for domestic use; but in the course of Dr. Clark's subjoined remarks, he detects in some of the samples more organic impurity than is usually found in good drinking water. Further, he adds, 'the water requires more efficient filtration.'

"It is a mistake to lay too much weight on simply the chemical analysis of water.

"Chemistry does not seem to go far enough, having failed over and over again to prove contamination in water on which there was the strongest suspicion (short of proof), and even in cases where the water was intentionally polluted for experimental purposes, failed to detect this. The chemist can, therefore, only speak of the water's purity chemically; but we must go further to be able to speak as to its safety.

"These remarks of Dr. Clark have naturally directed our attention to the water filtration, and from information we have been able to gather, this all important process cannot be said to be carried out with efficiency and thoroughness. But this is hardly the time for me to enter into details in connection with defective filtration, and I am not ignorant of the serious nature of our suspicion in connection with the water supply. Still, when we consider, as I have already said—(1) the sudden and rapid development of the outbreak,

distributed over a large area supplied with the same water; (2) the total absence, so far as we can judge, of any other common cause, and further, that after a heavy rainfall there was a decided increase in the number of cases, the instreaming water not improbably introducing fresh suspicious matter, or at least stirring up the bacteria or vegetable *débris* lying towards the bottom of the reservoir, consequently rendering the outflowing water more impure; (3) again, the somewhat important and significant feature, that in all the streets where there are deadened pipes the disease is more prevalent (in some of these streets there being twice the number of cases) than in the streets with continuous pipes; (4) and lastly, the analyst's report recommending more efficient filtration—from these data, it can hardly be said that we suspect the water without sufficient reason, nor that our suspicion is altogether groundless, because we are unable to specify that the water contains enteric infection. I feel there is little room for reasonable doubt that the water is not what it should be, and that it is at least an important predisposing cause in the production of this epidemic.

"In accordance with my duty, I have laid before you, gentlemen, all the information we have been able to collect in connection with this disastrous outbreak of fever, and I assure you that the conclusions arrived at have not been come to hurriedly, but only after careful deliberation and minute investigation of these various facts. And I trust that the public health will not be allowed to suffer until these suspicions become an absolute certainty, but that with the least possible delay steps will be taken for the improvement of the water, which most undoubtedly is an urgent necessity.

"In the various districts of the county receiving our water supply enteric fever was more or less prevalent. Dr. Munro (County Medical Officer), in his report for last month, mentions the fact 'that there occurred 672 cases of enteric fever amid a population of (approximately) 85,850 within our water supply district, being at the rate of 7·8 per 1,000 of the population, or 1 case on an average in every 127 persons; in the outside district the mean rate was only ·3 per 1,000, or 1 case in every 2,674 persons.'

"Undoubtedly the insanitary condition of some of these outlying districts rendered the inhabitants more liable to be stricken with the disease.

"The foregoing details are surely sufficient, however, to prove that the water supply cannot be said to be free from

suspicion, and, if not directly causing the epidemic, was an important agent in the propagation of the disease. The majority of our Public Health Committee would not admit this; they felt that the evidence was weak, and that nothing short of a demonstration would convince them that the water was in any way to blame. You will observe that in my last mentioned report I referred to the chemical analysis not being sufficiently reliable, and endeavoured to impress the Committee with the recognised fact that the wholesomeness or unwholesomeness of water depended not so much on the quantity, but on the character of the organic matter it contained, and also that the organic constituents were sometimes so scantily represented as to defy chemical detection. The water might, therefore, in spite of apparent purity, prove to be highly dangerous. I consequently stated that too much importance must not be attached to Dr. Clark's reports.

"Precautionary Measures.—We suggested as a precautionary measure that a public notice should be posted throughout the town recommending certain preventatives, such as the efficient disinfection of the excreta of those suffering from the disease, and warning the inhabitants against drinking water which had not been boiled. To this the Committee would not consent, fearing that such a notice was only calculated to cause alarm, if not panic. This was also the objection to my report should it gain access to the public.

The whole subject of our water supply has been referred to Mr. Reid, C.E., of Edinburgh, by the Water Commissioners, with, I understand, a free hand to employ any further assistance he might think necessary to enable him to furnish the Commissioners with a minute and exhaustive report, and I believe that report is daily expected. Meanwhile the Water Commissioners have disconnected the reservoir on which there rested the greatest suspicion, and operations are now going on for the improvement of the filtration beds.

"Present Position.—Within the last few days we are able to detect a diminution in the number of cases.

"The mortality has been at the rate of 59 per 1,000 of the population."

This concludes Dr. Donald's report, and the following table, which I have extracted from Dr. Munro's able report to the County Council on the epidemic, shows better than any words can do how clearly the water supply had to do with the propagation and spread of this disastrous epidemic.

ENTERIC FEVER EPIDEM

CASES SICKEN.

LOCALITY.	June.				July.				August.				
	5	12	19	26	4	11	18	25	1	8	15	22	29
	I.—WITHIN PAISLEY												
Burgh of Paisley,	1	2	...	...	9	17	35	39	42	13	19	25	36
Burgh of Johnstone, . . .	...	...	...	1	1	6	11	93	16	15	12	12	13
County <i>non-burghal</i> —within the Water Supply District }	...	...	...	...	...	5	10	29	10	5	14	8	6
Totals and Means— <i>within</i> Water Supply District }	1	2	...	1	10	28	56	161	68	50	45	45	55
	II.—OUTWITH PAISLEY												
City of Glasgow—South Side, .	1	3	2	1	1	...	3	2	4	2	8	6	6
Burgh of Kinning Park, . . .	...	...	1	...	...	...	...	...	...	...	...	...	1
Burgh of Govan,	2	...	2	...	1	...	...	...	...	2	2	4	1
Burgh of Gourock, . . . .	...	...	...	1	...	...	...	1	...	...	...	1	...
Burgh of Greenock,	1	...	1	...	...	...	1	5	...	2	4	2	1
Burgh of Pollokshaws, . . .	2	...	...	...	...	1	1	...	...	...	...	...	...
County <i>non-burghal</i> — <i>outside</i> the Water Supply District }	1	...	2	2	...	1	1	2	...	3	1	1	3
Totals and Means— <i>outside</i> Water Supply District }	7	3	8	4	2	2	6	10	4	9	15	14	12

¹ Deducting the cases which had partaken of F.'s ice-cream

WID-RENFREWSHIRE, 1893.

WEEK BY WEEK.

September.				October.					TOTAL CASES.	Cases per 1,000 of the Popula- tion.	Case Incidence.	Per- centage of Secondary Cases.
5	12	19	26	3	10	17	24	31				

WATER SUPPLY DISTRICT.

33	20	25	35	27	23	15	10	6	446	6.4	1 in 155 persons.	6.9
19	25	14	6	8	4	2	3	...	260	26.2	1 ,, 38 ,,	9.2
12	8	5	15	9	6	3	6	2	153	20.4	1 ,, 49 ,,	8.5
64	53	44	56	44	33	20	19	8	859	9.9 ¹	1 in 101 ¹ persons.	7.4

WATER SUPPLY DISTRICT.

6	15	8	6	10	6	3	2	3	98	.6	1 in 1801 persons.	...
...	...	1	...	1	...	...	...	...	4	.3	1 ,, 3500 ,,	...
5	3	1	3	3	1	3	...	1	34	.5	1 ,, 1852 ,,	...
...	2	3	3	...	...	...	...	1	12	2.6	1 ,, 375 ,,	...
2	5	4	1	4	...	...	6	...	39	.6	1 ,, 1607 ,,	...
3	...	...	1	2	...	...	...	1	11	1.1	1 ,, 936 ,,	...
2	3	2	3	1	4	3	1	2	38	.8	1 ,, 1289 ,,	6.4
18	28	19	17	21	11	9	9	8	236	.6	1 in 1610 persons.	...

rates become 8.9 and 1 in 113 respectively.

As noticed at the close of Dr. Donald's report, the whole subject of our water supply had been referred to Mr. Reid, C.E., Edinburgh, by the Water Commissioners, with a free hand to employ any further assistance he might think necessary. His firm employed Dr. Frankland of Dundee as an expert in the more modern system of the examination of drinking waters.

Together Mr. Reid and Dr. Frankland made an examination of the whole supply system, and they issued joint reports on the results of their investigations. These reports are interesting in that they confirm Drs. Clark and Donald's recommendations; but, while they supply a considerable amount of interesting data, they entirely fail in locating the sources of contamination, which could not have been a matter of difficulty to specialists of their experience.

I had noticed in the earlier part of the year that special care had to be taken in using the water for any purpose where there was a possibility of fermentive action taking place; and, although I had not otherwise given the matter much thought, whenever the epidemic started, and more particularly when I noticed that Dr. Donald, in his report to the Local Authority, mentioned the circumstance of the "marked increase of cases immediately succeeding the heavy rainfalls," I at once suspected the water supply, and I determined at the earliest opportunity to visit the reservoirs. I had been familiar for fully twenty years with the inferiority of the Rowbank water for many manufacturing purposes, owing to its impregnation with iron and dross, but I have never had occasion to question its wholesomeness for domestic purposes. On 17th October, 1893, I visited Rowbank, and I had not been there very long until I was convinced that this reservoir was the source of all the trouble. I can say, in language more strong than savoury, but nevertheless true, that Rowbank reservoir is simply a midden, and will never be anything else so long as the present conditions continue. This was my first impression of this reservoir, and these impressions became deepened and confirmed on further examination. All along its sides, with the exception of a small portion on the west side, the ground is boggy, and there are numerous feeders of little streamlets which are simply the surface drainages from the neighbouring farms, the encasing walls surrounding the reservoir being pierced in many places to allow these drainages free passages.

Rising from the reservoir, on the east side especially, the ground is farm land the soil of which is of a very heavy non-porous nature, of very little value for the purpose of absorbing

the drainage and farm manure which is disposed upon the surface, and which ultimately finds its way either directly to the reservoir, or being first carried into the Muirhead burn, the euphonious name of the supposed main supply—which is little else than the surface drain for the neighbouring farm lands—finally reaches the river. It was found at the time of the epidemic that more than one of the farm steadings and middens drained directly into the reservoir.

Inside the enclosing walls the surface of the ground is boggy, and there is one bog in particular at the south-east end, where, on testing the depth with a walking stick, I could not get bottom. Tracing the feeder of this bog in the direction of its source, I met a stream of green slimy sewage coming down from the farmlands above. It was at the mouth of this bog, in a sample drawn from the reservoir, that I found the typhoid bacillus, which fully convinced me of the source of the epidemic. Incidentally, let me say, that a better hunting ground could scarcely be found in the West of Scotland for microscopical specimens of germ and plant life, and when the water is low (at the the time of my visit it showed 23 feet of depth) this bog will repay a visit from the members of the Society.

At the south end the ground is almost impassable from filth and slime.

As if this condition of matters were not sufficiently aggravated, there were 20 sheep feeding inside the enclosure, and the ground all around right down to the water's edge, and also covered by the water, was plentifully bestrewed not only with their excrement, but also with that of larger animals. I regret to say that although the presence of these animals within the enclosure was remarked by myself and other writers in the local press at the time of the epidemic, the same disgusting condition remains to this day, for on the 13th October, 1894, I saw 15 sheep and 5 cows, and again on the 12th of this month (April) there were 7 cattle feeding inside the enclosure. Surely the merest tyro in sanitary science would say that this ought not to be. How aptly do Dr. Donald's words, in his report to the Local Authority on the necessity of the inspection of ice cream shops, apply with even greater force to the Water Commissioners themselves—"There is no fact more clearly established in preventive medicine than that to prevent infectious disease, filth must be prevented. There is, therefore, a responsibility resting on every individual to observe and encourage the ordinary laws of cleanliness, which is the one essential condition for the

prevention of filth-produced diseases such as enteric fever; and when this disease or any other infectious disease does appear, exercising every precaution to arrest its progress and preventing avoidable and filthy nuisances, such as I have indicated, remembering that they have not only their own household to consider, but their fellow citizens in general."

Not in any one thing does Rowbank reservoir, or the gathering grounds, come up to the standard of present day requirements either as regards the collecting or storing of water to be used for domestic purposes, and I have no hesitation in saying, and I will defend my statement if necessary, that the engineering of Rowbank is a disgrace to any part of the nineteenth century. I do not know who designed these works, but if no later data were obtainable than the Stanley water supply, the engineer had at least these works as a model. I question if better designed works than the Stanley supply are to be found anywhere, and it must now be close on sixty years since they were constructed.

What are the conditions necessary to the obtaining of a water of sufficient purity that it will comply with all the requirements of a domestic supply? It appears to me that there is one condition which stands prominently ahead of all others, and that is that the collecting ground shall be at a sufficient distance from the reservoir to allow of the complete oxidation in the water, during its travel, of all albuminoid or other organic matter which forms the food of germ life, and at the same time to destroy any deleterious bacterial life which may have found its way into the water from the gathering grounds. It is a well known fact that even mossy water becomes clearer by prolonged exposure to the air. It is also known to chemists that the amount of organic matter is reduced to a minimum in streams which have a long travel, and all bacteriologists are aware that the number of micro-organisms rapidly decrease in streams and rivers where the conditions are favourable, through shallowness or a rough stoney bottom causing continual circulation of the water, and where there is no chance of augmentation from sewage on their course. Even streams to which considerable quantities of sewage have been added at different points in their travel have become so purified as almost entirely to eliminate bacterial life; or, at any rate, to reduce it to such a condition that it ceases to be dangerous or hurtful. Pure air under these circumstances is the only bactericide—if I may call it by that name as compared with chemicals—permissible under these circumstances, so that it naturally follows that any

gathering ground whose distance will not permit a sufficient time for oxidation to take place, should be cut off from the water supply. The water course from the gathering ground should be of a width sufficient to permit the water to spread in as thin a layer as possible, and should be pitched at the sides and lined all along the bottom with rough undressed stones, so as to break up the water and cause it constantly to expose a fresh surface to the air. In a very short time both algæ and fungi will grow upon these stones and exert their marvellous purifying influence.

Water which has been subjected to treatment such as I have described may be stored in a reservoir for any length of time without injury, and it should even improve through continued oxidation of any organic matter which may have proved refractory. At the same time a reservoir may easily become a source of the greatest danger if ordinary precautions are not taken, while the water is thus stored, for the prevention of pollution by sewage or other deleterious matter, and it must be borne in mind that the purification of such pollution can only, at the best, be but a slow process owing to the density of the mass of water, the conditions not assimilating in any way to that of a thin running stream in a pebbly water course.

Dr. Frankland, in his report to the Commissioners, laid considerable stress on his investigation showing that "the removal of micro-organisms by subsidence was not taking place to the extent that he should have anticipated." I am surprised that he should have expected subsidence. There can be nothing in common between this water and the Thames water upon which, from his many investigations, he can speak with authority. The Thames water is extremely muddy, and these mud particles form nuclei to which the micro-organisms become attached, and on subsidence these insoluble particles carry down these micro-organisms, leaving the water, comparatively speaking, much purer. In the case of Rowbank the conditions are widely different. Under prevailing conditions there is very little suspended matter in the water, and such as there is shows itself under the microscope to be composed principally of vegetable *débris*, gelatinous matter, and seeds of plants, all of which, owing to their low specific gravity, having little tendency to subside. It is absurd to talk of bacteria having a tendency of themselves to subside, as it is beyond the power of the mind of man to connect an idea of weight with living organisms, which in one drop of water comprise in many instances many thousands of individuals.

Water teeming with micro-organisms, if shaken up in a glass stoppered bottle with precipitated chalk, or, as I find better still, owing to its much greater porosity, with calcined magnesia and allowed to subside, will be found to have become almost free from these organisms, but as the food has not been removed, in the course of a few days it will be found that the number of micro-organisms, which have meantime detached themselves from the precipitate, is nearly as great as ever. In the case of Rowbank, whose feeders are at all times highly impregnated with sewage, which is soluble in water, we have to look for another reason for the constant large number of bacteria always present. So long as these bacteria get food they will thrive and multiply at an almost incredible rate—under favourable circumstances 100 may become 10,000 or even more in one day—and so long as there is food there will be an increase, but when the time comes when the food in the water becomes used up, then these bacteria perish, and the number becomes much less—a case of the survival of the fittest. This accounts for the comparative freedom from disease in the summer time when dry weather prevails, and also for the greater prevalence of disease in waters subject to contamination when the autumn rains begin to wash down fresh food for the bacteria, and thus giving them a renewed lease of life. It naturally follows, under these conditions, that too much care cannot be exercised in preventing injurious matters from entering a reservoir.

Before a water such as Rowbank can be safely distributed to a community, it must of necessity be passed through some filtering medium for the purpose of removing not only suspended matter, but also any micro-organisms or organic matter which may still be in the water. It is only within comparatively recent times that bacteriological methods of research have been the means of revealing to the chemist the part which filtration plays in the purification of water. As far back as the year 1854 it was noticed by Mr. Spencer, the well known discoverer of the electrotpe process, that certain media, more especially magnetic oxide of iron, possessed the property of purifying water, rendering even brown peatty waters clear and sparkling. Before this time sand filtration was in common use, but as the conditions under which filters performed their work were not understood, such filtration was looked upon with just suspicion. There was no evidence from chemical analysis that satisfactory work had been performed by the filters, the organic impurities being little reduced in amount, and it is on evidence such as this that

chemical analysis has proved to be absolutely unreliable, not being able to detect the character of the organic matter in the water. It is on record that waters purposely infected with the bowel discharges of typhoid patients have been certified by competent chemists, on chemical analysis only, as free from dangerous impurities and perfectly suitable for dietetic purposes. It is to Dr. Koch, the eminent bacteriologist, that we are indebted for an effective method for determining the character of the organic impurities in water, and for the separation and cultivation of the various micro-organisms. Not until he published his researches and methods was anything definite understood, but now sufficient data has been collected to make clear the means which must be adopted to meet the circumstances of each particular case.

As I mentioned before, the sole purpose originally in filtration was the removal of matter in suspension. Now, not only is this demanded, but we also require that micro-organisms which would easily pass through the very large interstices of even the finest sand, should be removed. We know that when a filter newly filled has been set to work, very little change takes place in the condition of the water, as far as the removal of micro-organisms is concerned, for the first few days, and it is not until the sand has become "dirtied" or impregnated with slime that a reduction of the micro-organisms becomes apparent. This has led to the erroneous opinion held by many that it is this slime closing up the interstices, and so rendering the filtering medium finer, which prevents the passage of bacteria. I have passed a very slimy water, deprived of its air to a considerable extent, repeatedly through a deep sand filter which delivered the effluent unchanged. When this same effluent was afterwards aerated and again passed through the same filter, the result was a water comparatively free from micro-organisms. All bacteriologists know that the purification of water in filtration is practically dependent on the amount of air present in the water, and that if there is not sufficient air present to oxidise the organic matter then the slime—the real purifying medium—ceases to have a beneficial action.

For an explanation of the action which this slime has on the oxidation of the organic matter present in water, it seems to me we must look to a similar reaction which goes on in the oxidation of alcohol to acetic acid—in the ordinary process of vinegar making—in the presence of the white, gelatinous, fungoid plant called *Mycoderma vini*, *Mycoderma aceti*, whose presence Pasteur has shown to be necessary to the oxidation

of alcohol to acetic acid; so, I think, we may safely assume that the slime—an undoubted fungoid growth—renders the oxygen present in the aerated water more active in forming ozone within its pores, and thus destroying the micro-organisms at the moment of the formation of the ozone—*i. e., status nascendi*.

Assuming that this deduction is the correct one, then it fully explains the necessity of abundant aëration and filtration sufficiently slow to allow of the destruction of bacteria, and also of their sustaining food. The relation of speed or pressure to efficient filtration has been observed by all bacteriologists, and it is also a recognised fact that in all filtration the efficiency of the work done—granting that all other conditions are equal—bears a distinct relation to the speed of filtration.

There is one important fact which should never be lost sight of—that *filtration must only be considered as remedial*. A water which has been rendered sufficiently pure by oxidation before storage has no need of filtration. Rain water would gain nothing by filtration, nor would any water which would not permit slime to grow, or, in other words, find food for a fungoid growth. Loch Katrine water, for instance, showing only, after three days' growth, forty-four colonies in the cubic centimetre, and not one of these colonies liquefying gelatine, could not possibly be improved by any known method of filtration. This instance, if standing alone, ought to be a lesson to all water commissioners as to the conditions necessary in providing a pure supply of water for the use of communities; and there is no reason why Paisley should not have as pure a supply as Glasgow, if the same care were taken in collecting only from unpolluted sources, and keeping the water pure after it had been collected.

Through the kindness of Provost Mackenzie, I have been permitted to draw samples from the filtering beds above Stanley, on the high level system, and I submit to you the results obtained from their cultivation.

These results speak for themselves. They show that the condition of the water in the Rowbank Reservoir is very far from what it should be. Samples 2, 3, and 5 show most extensive pollution. The heavy leakage, visible to the eye, which is taking place from the filter bed into the filter well, accounts for the large number of micro-organisms present in Sample No. 13. There is also considerable leakage into the clear water tank from the filter beds. Now that the new filters have been started, I understand that the old filters are

to be put into thorough repair. No. 15 shows what can be done when water-works are properly constructed, but even this is not up to the mark.

SAMPLES DRAWN 12TH APRIL, 1895.

No.	SAMPLES DRAWN FROM	Number of Micro-organisms in Cubic Centimetre.
1	Rowbank—Main Supply, Stone Bridge,	7,508
2	Do. Drain about half-way between Nos. 1 and 3,	33,281
3	Do. Bog at south-east corner,	Innumerable.
4	Do. From Reservoir, east side,	8,272
5	Do. Small Stone Bridge, south end,	Innumerable.
6	Do. At Sluice,	6,160
7	High Level—New Filter Well (nearest road),	176
8	Do. do. middle,	104
9	Do. Old Filter Well, No. 1 Filter,	116
10	Do. do. No. 2 Filter,	245
11	Do. do. No. 3 Filter,	199
12	Do. do. No. 4 Filter,	132
13	Do. do. No. 5 Filter,	1,302
14	Do. Clear Water Tank,	144
15	Low Level—Supply Sample drawn in Town,	61
16	Loch Katrine—Sample drawn in Glasgow,	44

The greatest interest centres upon the work now being performed by the new filters. The filter from which No. 7 was drawn was put to work at the beginning of February, and the other in the middle of March. Through the kindness of Mr. Moncur, Master of Works, I have had an opportunity of inspecting the plans of these new filters, and I have every confidence in stating that they answer all the conditions necessary for doing superior work.

Under these circumstances, it is very disappointing to find that the filtration of the water supplied from the high level to the town is still very far from satisfactory. It is evident, from the large number of micro-organisms present in the filtered water, that the filters are called upon to do more work than they can overtake, and it is also evident that one of two things will require to be done before the water can be considered satisfactory—either the filtering plant must be extended so as to cope with the demand made upon it by the impurities in the water, or else the water in the reservoirs so far purified before being sent on to the filters that they will have a chance of doing their work properly.

Obituary.

DR. JOHN MOYES, OF LARGS.

DR. JOHN MOYES, who died at Largs on 9th April last, was 47 years of age. His life was not long, nor was it characterised by any very pronounced professional achievements; but his character had endeared him to his patients, and also to a large circle of friends in his profession.

Beginning the study of medicine somewhat later than many of his fellow-students, he had more general knowledge and experience than some of them. He began work in a lawyer's office, and had some knowledge of business in other ways before he entered the college. At the university he shared the enthusiasm kindled in many at that time by the stirring prelections of Professor Nichol on English literature, and he had a keen appreciation of the beauties of poetry and literature generally. His nature on this side was likewise cultivated by the practice of music, and he had a certain proficiency in the management of such a difficult instrument as the organ, which up to the last continued to interest him, and the fine instruments recently introduced to Largs specially excited his interest and attention.

In his medical course he took a good position, graduating at the University in 1877. After this he supplemented his studies by practical experience as a resident, gained in the Western Infirmary under Dr. Finlayson, and in the Royal Infirmary under Dr. Hector Cameron. He further extended his knowledge of certain specialties by a course at Vienna along with some of his Glasgow friends, and he had the advantage there of being already conversant, to some extent, with the German language, which he had acquired while resident formerly in the house of a German pastor.

In starting practice he determined to settle at Cambuslang, which was then beginning to grow as a suburban residence; but the field was small at that time, and he felt somewhat cut off from those with whom he had professional and literary sympathies. When he was offered a post as clinical tutor under Professor M'Call Anderson in the Western Infirmary, he was readily allured to Glasgow, and intended making a practice there. While attracted by, and interested in, this tutorial work, he had scarcely the patience for the dreary waiting so generally required for success in practice in a

large town; and when the opportunity presented itself of entering into a partnership with Dr. Kirkwood of Largs, who was desirous then of lessening the strain of his work, he accepted this solution of the problem so that he might more quickly engage in the actual work of his profession, and make a settlement in life. In this sphere he became the trusted adviser and friend of most of the patients to whom he was thus introduced. The comparative quietness of such a practice in the winter months enabled him to keep himself in contact with literature, and he became an enthusiastic admirer of Goethe's works, especially *Wilhelm Meister*, endorsing Carlyle's great admiration of this work, and he found pleasure in grappling with the hidden meanings he thought he could discern in the second part of *Faust*. His keen appreciation of natural scenery was daily fed by the beauties of the Clyde.

Of contributions to medical literature, the most important was a paper in this *Journal*, "On a case of Embolism of the Superior Mesenteric Artery," in which he had worked up the literature of the subject with industry and skill.

His thesis for his doctorate of medicine was sustained in 1886; it was on the "Medicine of Shakespeare." In this subject he found a congenial sphere for both his medical and literary sympathies. He felt, however, after it was given in, that it might be improved, and he was in correspondence with a late well known Shakespearian scholar, who gave him some hints as to where he might acquire information on the state of medical knowledge in Shakespeare's time; but, while availing himself of this to make some researches in the Hunterian library here, he felt the distance from Largs to be an almost insuperable difficulty in following this out. He had, however, written a fresh introduction to his thesis, and was on the point of preparing it for the press when his fatal illness came upon him. It is proposed by some of his friends to have it published if this is found possible.

Always of a fragile frame, and conscious of a tendency to lung disease, he had a fair share of health and vigour, except that frequent and sometimes severe asthmatic attacks habitually troubled him; but they seldom impaired his activity or his cheerfulness. It seemed, indeed, as if this were to be the form of disease which, through its complications, might cut him off in time. But in December last a spitting of blood, and then a pleurisy, led on to a rapidly developed cavity in his lung, and this disease was further complicated by a partial hemiplegia. His illness was characterised by

MEDICAL ORGANIZATION.—The Eastern Medical Society, the youngest of our professional associations in Glasgow, has formulated a lengthy series of resolutions on this subject. The document deals with such matters as the relations of the practitioner to the procurator fiscal, to the police commissioners in connection with street accidents, to friendly societies, and to the election of members of the General Medical Council. The Eastern Medical Society has forwarded the document to other societies, and at present it is being carefully discussed by the Southern Medical Society.

MEDICAL APPOINTMENTS IN THE COLONIES.—A paper from the Colonial Office (Miscellaneous No. 99) on this subject reached us too late for notice in the May number. It gives details as to medical appointments in the various British Colonies. Very full information is given as to salaries, pensions, allowance for passage money, and other matters which may be of interest to medical men thinking of settling abroad. For ordinary appointments, candidates must be between 23 and 30 years of age, and must submit to a medical examination as to their state of health. Applications are to be addressed to the Private Secretary, Colonial Office, Downing Street, S.W., during the month of April of each year, and from this office, also, we have no doubt any of our readers desirous of consulting the paper may obtain a copy of it. In the course of the year April, 1887, to April, 1888, there were in all fifteen vacancies to which appointments were made from this country. In 1894-95 there were fourteen vacancies (British Guiana, Cyprus, Fiji, Gold Coast, Lagos, Leeward Islands, Trinidad, Windward Islands). The list of candidates in April last comprised about eighty names.

DRUGS, NEW PREPARATIONS, INSTRUMENTS, &c.—*Messrs. Burroughs, Wellcome & Co.* send specimens of the following tabloids:—(1) Residuum Rubrum Tabloids, consisting virtually of the hæmatin extracted from bullock's blood, and said to contain a very large percentage of an organic combination with iron; (2) Thymus Gland Tabloids, consisting chiefly of nuclein and nucleo-albumin, and said to be useful in pernicious anæmia and leucocythæmia; (3) Dried Sulphate of Iron Tabloids; (4) Zymine Tabloids, keratin coated, said to pass through the stomach, and only to dissolve in the alkaline juices of the intestinal canal; (5) Permanganate of Zinc Tabloids, for preparing injections and gargles.

The *Liquor Carnis Co.* supply us with a sample of meat juice, previously known as "Shepperson's Meat Juice," but which the proprietors have now determined to designate the L. C. C. Meat Juice, under which title it will henceforth be sold. The *Medical Annual* for 1895 describes it as a very excellent preparation of meat juice sold at a moderate price—viz., 2 oz. bottles, 1s. 9d. That the taste is palatable we can testify from personal trial. The preparation should be useful in the sick-room.

The *Standard Malt Extract Co., Limited*, inform us that they have opened an extensive factory at Clayton-le-Moors, Lancashire, and are prepared to supply various preparations of malt and cod liver oil of their own manufacture.

Messrs. *Reynolds & Branson* of Leeds send us illustrations of new naso-pharyngeal instruments, devised by Mr. H. B. Hewetson, M.R.C.S., of the Leeds General Infirmary. Fig. 1



FIG. 1.

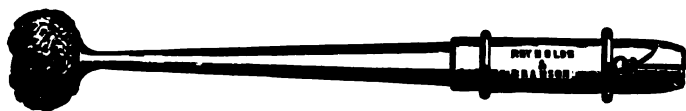


FIG. 2.



FIG. 3.

is an improved scraper for naso-pharyngeal adenoids. Figs. 2 and 3 show a sponge holder and brush, devised for easy cleansing. The sponge holder (Fig. 2) is of vulcanite, and the wire brush (Fig. 3) accompanying it is for cleaning the interior of the holder.

WE notice that the firm of Messrs. Ingram & Royle, London and Liverpool, has, for private reasons, been registered as a limited liability company.

REVIEWS.

A Text-Book of Pathology, Systematic and Practicul. By D. J. HAMILTON, M.B. Copiously Illustrated. Vol. II. London: Macmillan & Co. 1894.

IN our issue for September, 1889, we noticed at some length the first volume of this work. With the appearance in 1894 of the two parts forming the second volume, the work was completed, after an interval of five years from the publication of the first, and it now stands as one of the largest and most complete works on the science of pathology in the English tongue. In our notice of the first volume, we referred to the wide scope of the subject of pathology, and to the bold attempt which Professor Hamilton had made to include a discussion and exposition of the whole science within the boards of his book. Such an attempt is more obvious, and seems even more strikingly bold, in the two volumes now before us. The author has had the ambition, and it is a lofty one, to produce a complete and authoritative work on the *whole* science of pathology, and we are bound to say that he has accomplished his task with credit and success. Occasionally, indeed, the effort after completeness strikes us as being just a trifle strained—as, for example, when we have to read through sections dealing with the theory of physical diagnosis of the lungs, or when we come across a paragraph expounding the relationship of albuminuria to life insurance. We are not accustomed to find such matters dealt with in works on experimental and anatomical pathology, nor, indeed, would we expect to place much reliance on the authority of a pure pathologist on such matters. Hence the impression of strained effort to which we have just referred, but any such impression is soon lost in admiration for the thoroughness of the author's work as a whole. A sense of inequality in the various sections is sometimes experienced, but this also is possibly unavoidable in a work of such magnitude, and is in a large measure compensated by the copious bibliography which is furnished on all the subjects discussed, or even mentioned.

The book is one for the advanced student or the expert rather than for the beginner in the science of pathology. It is not a book for the student reading for a mere pass, though it will doubtless be carefully conned by the man

going in for honours. As a work of reference it is excellent, and no doubt it will find a place in every English laboratory, and in the library of every pathologist and scientific physician or surgeon. Such is the opinion, after mature deliberation, which we have formed of the place and value of Hamilton's book in English medical literature, and we have no hesitation in saying that, by its publication, the author has greatly enhanced his already high reputation as a pathologist.

In Part I of the second volume the following subjects are dealt with—viz., the diseases of the respiratory organs, of the liver, of the urinary organs, of the male and female generative organs, and of the digestive organs. Part II is chiefly occupied with the affections of the nervous system, and with the diseases of the mamma, spleen, skin, bones, and joints. It also contains a most interesting chapter on malformations, as well as one on systematic bacteriology, the latter being well brought up to date. The last section in the book discusses the phenomena of fever and animal heat.

We close this short notice of a most valuable book with a word of congratulation on the artistic excellence of the illustrations. All of them, whether in black and white or in colour, are beautifully executed, and are most helpful to the reader in grasping the points they are intended to illustrate.

Ovarian Neuralgia and its Treatment. By A. RABAGLIATI, M.A., F.R.C.S. Ed. London: Baillière, Tindall & Cox. 1895.

THE author, in this short monograph of some eighty pages, would have us believe that the majority of cases of so-called "ovarian neuralgia" are due not to a morbid condition of the ovaries, but to alterations in the muscles, and especially in the sheaths of the muscles of the abdomen. He further brings forward a great deal of evidence attempting to prove that these changes in the muscle sheaths are due to rheumatism. Instead, therefore, of characterising these cases "ovarian neuralgia," the author would describe the condition as a "perimysitis rheumatica."

The treatment now recommended by him is what he terms "auto-presto-myo-kinetics, self-movement of muscles under pressure," with good simple food, and stimulation to the excretory organs. Oöphorectomy he is opposed to, and the treatment previously recommended by him of excision of the umbilicus he has ceased now to advocate. The book is well

got up and is interesting, and we can quite understand how benefit may accrue to the patient performing regularly the exercises recommended by the author of this little volume.

Modern Materia Medica. By H. HELBING, F.C.S. London: H. K. Lewis. 1895. Fourth Edition.

It is possible that the term "new remedy" is as ambiguous a compliment as the phrase "new woman," and the two certainly agree in their somewhat assertive predominance in current literature. To what extent they have come to stay time alone can determine. But those who are interested in the claims advanced on behalf of the synthetical remedies recently introduced into medicine may abundantly satisfy their curiosity by consulting the pages of Mr. Helbing's manual. The fact that it has so rapidly passed into a fourth edition is a practical testimony to the value of this volume.

The Year-Book of Treatment for 1895. London: Cassell & Co.

THE reputation of the *Year-Book of Treatment* will be fully maintained by the present issue. As in former years, it provides a careful and critical selection of the large and somewhat bewildering crowd of contributions to the therapeutic art which have appeared in the pages of recent periodical literature. We note, as of special interest at the present moment, a very complete and admirable paper on the antitoxin treatment of diphtheria by Dr. Sidney Phillips.

Surgery: its Theory and Practice. By WILLIAM JOHNSON WALSHAM, F.R.C.S. Eng., M.B., C.M. Aberd. Fifth Edition. London: J. & A. Churchill. 1895.

WALSHAM'S *Surgery* has deservedly enjoyed an extensive popularity among students and practitioners in various parts of the kingdom, as is evidenced by the sale of 20,000 copies, as the author tells us, in the space of eight years. In the present edition its reputation for clearness and conciseness is fully maintained, and many improvements have been added to bring the work up to date. The volume, as it now appears, is of a more convenient shape than formerly, while it is but little increased in size owing to the omission of a considerable amount of matter now of little value in a work of its scope.

The description of the changes which occur in inflammation have been somewhat amplified, and the bacteriology of septic and infective processes occupies more space than was formerly given to it.

The section on abdominal surgery has been revised and altered to suit the requirements of recent developments, and the more modern only of the operations on the intestines are described. Thus the operations for the radical cure of inguinal hernia include Macewen's, Halstead's, M'Burvey's, and Bassini's, and a few modifications of these; while those of Wood, Spanton, and Heaton, which were described at length in former editions, are omitted as being obsolete.

Considerable attention has been paid to the newer methods introduced in enterorrhaphy and intestinal anastomosis, for the purpose of obviating the danger of long exposure of the abdominal contents whilst applying sutures, and full descriptions, with numerous illustrations and diagrams, are given of the use of Lewis's plates, Murphy's button, Jones's bone tube, and various shorter methods of uniting bowel.

The other sections show signs of careful revision, and the whole book is one which can be safely recommended to the student.

Spinal Curvature and Awkward Deportment: their Causes and Prevention in Children. By DR. GEORGE MÜLLER, Professor of Medicine and Orthopædics, Berlin; English Edition by RICHARD GREENE, F.R.C.P. Ed. London: The Scientific Press, Limited.

THIS is a useful little book for parents rather than for practitioners. Too often is the doctor called upon to show to the mother of a girl, say of 14 years of age, a spinal curvature which probably has remained unnoticed for several years. Dr. Müller urges parents to examine the backs of their children as they grow, and tells how to detect deformity. The author wisely states that "the smallest curvature of the spine will not grow of its own accord, and will not correct itself without aid."

Good advice is given how to prevent the formation of curvature by attention to dress, and deportment while standing, sitting at a desk, or walking.

Useful exercises for developing the muscular system are described and well illustrated.

Text-Book of Anatomy and Physiology for Nurses. Compiled by DIANA CLIFFORD KIMBER, Graduate of Bellevue Training School; Assistant Superintendent, New York City Training School. New York and London: Macmillan & Co. 1895.

THIS book of 268 pages is most interestingly written. Its descriptions are accurate, and are expressed in language intelligible to the beginner, although always introducing the technical term for the structure or function dealt with. The type is excellent, and there is no lack of illustrations, the high standard of which may be judged by the fact that quite a number of them are reproduced by permission from Quain's *Anatomy* and Schäfer's *Essentials of Histology*.

Our only serious criticism of the work is that occasionally the authoress has introduced details which are not likely to be of any advantage in the education of nurses. We would instance, for example, the descriptions of the minute anatomy of the internal ear and of the retina. It is, however, only exceptionally that she thus seems to pass beyond what may be considered the legitimate field of instruction for nurses.

A full glossary, with derivations, is given at the end, and will be found most useful.

We are confident that the work will prove of great assistance, not only to nurses themselves, but to those whose duty it is to teach them.

Practical Urinalysis and Urinary Diagnosis: A Manual for the use of Physicians, Surgeons, and Students. By CHARLES W. PURDY, M.D., Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School, &c. Philadelphia: The F. A. Davis Co. London: F. J. Rebman. 1894.

WE have pleasure in recommending this manual to our readers as one of the most thorough upon its subject. The author has perhaps been a little unfortunate in his title, as that which he has chosen by no means gives an adequate idea of the scope of the work. The first part is said to deal with the analysis of the urine, but we have, besides, discussion of the theories as to its secretion, and as to the source in the economy of its normal and abnormal constituents. In the second part, again, which is named "urinary diagnosis," there is not only a description of the urine in various diseases,

medical and surgical, but also an account of the prominent clinical features of each disease. Further, there is a most useful appendix on the difficult question of the examination of urine for life insurance. Illustrations are liberally provided, the coloured plates in particular being excellent.

Among other points which might be mentioned is the importance which is attached to the centrifugal method for the separation of certain constituents and sediments. An electric centrifuge and a percentage tube have been devised by Dr. Purdy, the latter being used for thus estimating the quantity of precipitates. The hypobromite test for determining the amount of urea is said to be most readily carried out by the apparatus devised by Doremus, "which gives very satisfactory approximate results for rapid clinical work" (p. 28). For small quantities of albumen the test by ferrocyanide of potassium (pp. 74 and 80) is counted most reliable; while for quantitative estimation of sugar the author still holds to a modified copper solution similar to that to which we drew attention in reviewing his work on *Diabetes*.¹ The more recent (qualitative) phenyl-hydrazin test for sugar is said (p. 106) to give "very trustworthy results."

In connection with physical examination, stress is very properly laid on the difficulties of percussing normal kidneys; but here (p. 239) we must point out that there is an inaccuracy as to the lower border mentioned. This inaccuracy is the more remarkable as it is practically the only one of importance which we have noticed, and we do not feel deterred by it from most heartily recommending the work as being a most useful one, and, in general, thoroughly reliable.

Essays on Rural Hygiene. By GEORGE VIVIAN POORE, M.D., F.R.C.P. Second Edition. London: Longmans, Green & Co. 1894.

THE first edition of this work appeared less than eighteen months before this, the second, and the author claims, justly, that it attracted some attention, and has had good effect in various quarters.

The appearance of this book is well timed, for a better elementary text-book in hygiene for the use of county and parish councillors, who have to face important sanitary duties in almost all cases without the slightest special knowledge, can hardly be found.

¹ Cf. *Glasgow Medical Journal*, 1891, vol. 1, p. 227.

The author has not seen reason to reile from any of the opinions expressed in the first edition, but has rather been strengthened in his faith, and he claims that his recommendations, which were deemed "counsels of perfection," have in not a few cases been adopted with beneficial and gratifying results.

In our notice of the first edition (*Glasgow Medical Journal*, vol. xl, p. 442), we drew attention to Dr. Poore's demonstration of the value of the "living earth" as the only true scavenger, and his advocacy of earth closets. In this edition the chapter on earth closets is much improved by more detailed descriptions, with drawings, of the apparatus which he himself has devised and tested thoroughly. He has strengthened his case by numerous experiments, and has tested the powers of the "living earth" as scavenger by some interesting exhumation experiments.

He insists as strongly as ever on the folly of throwing away valuable manure, or of destroying its virtues by improper methods of treatment—*e.g.*, antiseptics. He praised the Chinese for their sensible methods before, and now he brackets the Japanese with them (p. 285), and quotes from a traveller in Japan a method of paying rent for lodgings which probably has not yet suggested itself to the most ingenious "raiser of the wind" among impecunious lodgers in this country. This observer "was told that in Hiroshima, in the renting of the poorer tenement houses, if three persons occupied a room together the sewage paid the rent of one, and if five occupied the same room no rent was charged."

A very interesting and important addition to the book is a description of "dry urinals," troughs filled with sawdust, freely exposed to the air, and stirred up occasionally (p. 261). The experiments (pp. 140 seq.) which suggested this method are extremely suggestive, and are worthy of repetition on a larger scale. The amount of urine, in small quantities at a time, that sawdust used in this way can dispose of, without offence, and presumably without risk, is surprising.

The book has been added to a good deal, and there has been some condensing and rearranging of material, but it is as racy and interesting as ever, and its perusal should be as pleasurable as profitable to all interested in sanitary matters, either in their scientific or their practical aspect.

MEETINGS OF SOCIETIES.**GLASGOW MEDICO-CHIRURGICAL SOCIETY.****SESSION 1894-95.****MEETING VI.—22ND FEBRUARY, 1895.****MR. MAYLARD, *Vice-President, in the Chair.*****I.—A CASE OF GRAVES' DISEASE IN A PATIENT, THE SUBJECT OF ARTICULAR RHEUMATISM AND MITRAL STENOSIS.****BY DR. C. O. HAWTHORNE.**

The diagnosis of Graves' disease in this case rests upon the following facts:—The patient is a female, aged 25; there is manifest prominence of the eyeballs, more especially of the right eyeball; the pulse varies from 100 to 140, and is free from irregularity; the existence of general nervousness, a tendency to perspire, attacks of diarrhoea, irregular menstruation, breathlessness, and a sense of palpitation; some of these, however, are at least in part probably due to the existing organic cardiac disease. The absence of muscular tremor and of any appreciable enlargement of the thyroid gland cannot, in the light of the above facts, be considered to invalidate the diagnosis. The special interest of the case depends upon the association of organic cardiac disease and articular rheumatism, with the symptoms of Graves' disease, and as the murmur is auricular-systolic in rhythm, and is most distinct in the region of the apex, and there is also a marked pre-systolic thrill, there can be no doubt that the murmur is due to structural change in the mitral valve. Further, the history of the case shows two distinct attacks of acute or sub-acute rheumatism. In 1884, up to which time she had enjoyed good health, the patient was admitted to the Royal Infirmary suffering from rheumatic fever. From this she made a good recovery, a ventricular-systolic murmur which had been present, being on her dismissal, according to the Ward Journal, "scarcely detectable." In May, 1893, patient was admitted to the Western Infirmary with a painful and swollen condition of several of the joints, the temperature being febrile. During her residence the most troublesome symptom was cardiac distress associated with rapid action of the heart, and this continued after the pains had disappeared and the temperature fallen to normal. On admission, a prolonged auricular-systolic

murmur was detected, and subsequently there were evidences of pericarditis.

Murmurs in the precordial region are, of course, frequent in cases of Graves' disease, but in most cases these are ventricular-systolic, and are usually regarded as functional. But organic cardiac disease and rheumatic attacks have occasionally been observed in connection with exophthalmic goitre. Fagge¹ reports two fatal cases in which there had been an antecedent attack of rheumatic fever, and in one of them pericarditis and endocarditis were found at the autopsy. Byrom Bramwell² has seen one similar case. The present case is a further illustration of this rare association.

It is also worthy of note that the rapid cardiac action in this patient has always been beneficially influenced by belladonna, whilst digitalis has proved quite ineffectual.

Dr. T. K. Monro said that there was undoubted evidence of the patient's having organic disease of the mitral valve, and that in her case this must be presumed to be of rheumatic origin. The occurrence of organic valvular disease in exophthalmic goitre was regarded as being sometimes due to the rapidity of the cardiac action, giving rise to friction, and so causing endocarditis.

Dr. Jones asked if there was any albuminuria, and was answered in the negative.

II.—SPECIMEN FROM A CASE IN WHICH A VERY LARGE GALL-STONE WAS EVACUATED SPONTANEOUSLY *PER ANUM* NEARLY TWO MONTHS AFTER AN ATTACK OF INTESTINAL OBSTRUCTION.

By DR. T. K. MONRO.

The specimen was presented to the Museum of the Victoria Infirmary by Dr. Andrew Stewart Tindal, who has been kind enough to furnish me with the following clinical notes:—

February, 1893.—Mrs. M., æt. 38, turned suddenly ill one evening after eating a hearty supper. She was seen on the following day, and was found to be suffering from severe sickness and vomiting, with great pain in the abdomen. Patient was treated with morphia and enemata, as she had all the symptoms of intestinal obstruction. The vomiting and pain gradually subsided, and she gave birth to a healthy child at full time, three weeks after the illness. About a month after her confinement, while straining at stool, she passed the stone, after suffering a good deal of pain.

¹ *Principles and Practice of Medicine* (second edition), vol. i, p. 1012.

² *Atlas of Clinical Medicine*, vol. ii, part 3, p. 94.

1895.—Patient has remained healthy ever since, and is in her thirteenth pregnancy.

The following are the measurements of the stone:—

Greatest diameter,	3·8 cm.	Greatest circumference,	10·6 cm.
Intermediate „	2·6 „	Intermediate „	10·2 „
Least „	2·0 „	Least „	7·7 „
Weight, 12·5 grams.			

The calculus is a flattened ellipsoid in form. The two flattened surfaces are slate-grey in colour; one border is partly so also, the other is rather drab. One pole is orange-brown; the other is mostly drab, with a small area at its tip much darker (brown). The poles, and particularly the orange-coloured one, are rough and tuberculated. The borders are not so rough. The grey surfaces are fairly smooth. The stone is hard, has a soapy feel, and floats in water.

Experience shows that in cases of intestinal obstruction from gall-stones the obstruction will probably yield spontaneously by the calculus passing onwards, so that an expectant line of treatment would be justifiable. But experience also shows that it is almost impossible to diagnose this cause of obstruction. In almost every case where a gall-stone has been found on opening the abdomen to relieve acute intestinal obstruction, a band, twist, or other variety of internal strangulation has been anticipated.

Mr. Mayo Robson regards the fact that jaundice is nearly always absent in these cases as proof that these large calculi reach the bowel by ulceration instead of in the ordinary way through the bile-ducts. In the present case the stone probably got into the duodenum by ulceration, and thereafter gave rise to the symptoms of obstruction during the whole or part of its course through the small intestine. (For further information on this subject, reference may be made to Mr. Mayo Robson, *On Gall-stones and their Treatment*, Cassell & Co., 1892; also *British Medical Journal*, 26th January, 1895, p. 194.)

Mr. Maylard asked if Dr. Monro had any theory as to how the stone had passed along the bowel. The appearance of the extremities was very different from that of the sides. It looked as if there had been some deposition at each extremity.

Dr. Monro presumed that the long axis of the stone had been parallel to that of the bowel, and that the sides had, therefore, been rubbed, while the poles had been free to accumulate material as the stone passed through.

Mr. Maylard asked if there had been no symptoms of

stricture of the duodenum, such as sometimes occurred after the passage of large gall-stones.

Dr. Monro replied that there had not.

Mr. Maylard said that he had performed cholecystotomy for the removal of a stone, which was half the size of that now shown. He had found it jammed in the duct. The patient had suffered also from carcinoma, and death had taken place from that cause nine weeks after the operation.

Dr. Hawthorne was reminded by *Dr. Monro's* case of a specimen of a large gall-stone, also passed *per rectum*, which had been shown by *Dr. George Marshall* at the Pathological and Clinical Society (see *Glasgow Medical Journal*, 1893, vol. ii, p. 66, and *Trans. Path. and Clin. Society*, vol. iv, p. 227). *Mr. Hutchinson* had published similar cases in the *Archives of Surgery* (vol. ii, plate 57, fig. 3, and vol. iii, p. 9, plate 88).

III.—CASE OF SIMULTANEOUS ULCERATION OF THE LYMPHATIC TISSUES OF THE THROAT AND INTESTINES, WITH SUPPURATION OF THE CORRESPONDING GLANDS IN THE NECK AND MESENTERY.

By DR. T. K. MONRO.

Dr. Monro's account of this case is published as an original article at p. 354.

Mr. Maylard said that there were many points in this interesting case which one would like to discuss, but he had the feeling that one would require time for reflection before speaking about them. There was one thing which he might mention as needed to complete an otherwise excellent report—namely, a bacteriological investigation of the pus. It would have been desirable to have had cultures made to ascertain whether or not staphylococci had been present. The case had undoubtedly been a septic one all through, but the seat of origin seemed to be uncertain.

With regard to what *Dr. Monro* had said about sewer gas, he might mention that when he (*Mr. Maylard*) had been working at bacteriology, he had made a series of investigations which tended to show that there was nothing in the gas, coming off decomposing material, that contained anything like organisms. He had put pieces of meat into the bottom of flasks, and, when they had decomposed and were smelling most foully, he had suspended fresh tissue on sterilised wire over the stinking fluid for twenty-four hours, or longer. On removing this tissue to nutrient jelly, no development had

taken place, proving that in the gas coming off there were no micro-organisms. Similarly it might be inferred that, even though disease were produced by sewer gas, it certainly was not due to floating organisms.

Dr. Hawthorne said that *Dr. Monro's* case recalled to his mind one recently published by *Dr. Middleton*, in which purulent mediastinitis followed suppuration of a submaxillary gland.¹ In it, just as in that now under discussion, there had been great difficulty in forming a diagnosis during life.

Dr. Walker Downie remarked that as there had been no great complaint of pain in the throat, there could not have been much inflammatory action there. The ulcerated surface in the larynx, as seen in the preserved specimen, was very suggestive of tuberculosis, but the history of the case and the details of the examination were against any such theory.

IV.—TYMPANIC OSSICLES FROM A CASE OF SUPPURATIVE DISEASE OF THE MIDDLE EAR, POST-SCARLATINAL.

BY *DR. J. GALBRAITH CONNAL*.

Dr. Connal showed the specimens mentioned. A full account of the case will be found at p. 415.

Dr. Newman remarked on the absence of extension of the inflammatory process to the mastoid cells or to the brain. When there was double ear disease, there was a greater risk of cerebral complications—a risk greater out of all proportion to the mere fact of the lesion being a double one. That he had found to be the case in his experience of cerebral cases.

Dr. Walker Downie said that when there was suppuration in the brain, following ear disease, the ear affection was usually a chronic one. There had been no mastoid implication here, although one would have expected it, as the process had been acute. This case was exceedingly interesting from the inflammation affecting both middle ears in so acute a form as to lead to the rapid discharge of the ossicles, and also on account of the appearance and condition of the ossicles so discharged. They bore no evidence of having suffered from the necrotic action, and appeared as if they had been dissected from a healthy ear. *Dr. Downie* agreed with *Dr. Connal's* view as to the ossicles being thus unaltered because of the rapid inflammation of the soft tissues having led to their early discharge.

Dr. Newman had recently seen a case in which there had

¹ Cf. *Clinical Records from the Glasgow Royal Infirmary*, by *George S. Middleton, M.D.*, p. 38; also *Glasgow Medical Journal*, 1894, vol. ii, p. 1.

been very acute suppuration in both ears, following closely on scarlet fever, and in which, indeed, the question of trephining had been raised. There had been acute periostitis (over the mastoid), but the mastoid cells had not been involved.

Dr. Carslaw spoke of the ear complication of scarlatina as observed in patients during their residence in Belvidere Hospital. It had not been at all an infrequent experience to have a case, in the early weeks of an attack of scarlet fever, in which an otorrhoea was followed in a few days by extreme tenderness over the mastoid. That this tenderness was due merely to a periosteal condition was shown by its being rapidly recovered from on treatment by incision right down to the bone, even though no pus was evacuated.

Dr Walker Downie added that, in his experience, the acute ear affections tended to give rise to mastoid implication, as described by *Dr. Carslaw*, whereas the chronic affections tended to attack the brain.

MEETING VII.—1ST MARCH, 1895.

MR. H. E. CLARK *in the Chair.*

I.—A BOY WITH MULTIPLE EXOSTOSES.

BY DR. RUTHERFURD.

In showing this patient, *Dr. Rutherford* said that he had brought this case to the notice of the Society rather on account of the rarity of the condition with which the boy was affected, than from any other point of interest. It was true that the etiology of the condition was obscure, and he thought that one was bound to regard the malformation as the result of "sport" pure and simple. So far as he was aware, there was no tendency for those exostoses to take any malignant form. He was aware that some of them in their later history did become a source of very considerable inconvenience. This might take place in two directions—(1) from the mere pressure of the bony growth either against the skin or other part; when it was against the skin, trouble was apt to arise from the friction of the clothes; or the pressure might be against a nerve trunk, as was found in the case of exostoses about the lower cervical vertebræ. That, *Dr. Rutherford* believed, was described, but he did not wish to

confuse it with the so-called exostosis of this region, which was really a cervical rib giving pressure. Or (2) the growth of the bursa over the exostosis occasionally led not only to its becoming very large itself, but to its becoming filled with rice bodies, such as are found in joints or in other bursæ.

The patient was a boy of 11 years, who was brought with the complaint on the part of his parents that he had a "lump" growing on the lower end of his ulna. From its hardness and general appearance, Dr. Rutherford thought of exostosis, and examined the child all over, and then found that the long bones of his limbs, the clavicles, and certain of his ribs near the cartilages were beset with exostoses. None of those others were so large as that on the ulna, and they had caused no inconvenience, so that the parents had become aware only of the one first mentioned. With regard to the situation of the exostoses, it might be said that they were all towards the extremity of the diaphyses. On enquiry, Dr. Rutherford had ascertained that no similar condition had existed in any other member of the family.

Discussion on this case was taken along with that on the case which follows.

II.—SPECIMEN OF EXOSTOSIS OF UNGUAL PHALANX OF THE GREAT TOE (DUPUYTREN'S EXOSTOSIS).

BY DR. RUTHERFURD.

Dr. Rutherford showed the naked eye specimen as well as microscopic sections from this case. The exostosis had projected just under the edge of the nail of the great toe of a young man of 25 years. It was said to have been present for about eight years, and its origin was attributed by the patient to some injury he had received. It was difficult to attach any importance to injury as a cause of such a condition. In the most prominent part of the specimen there was a piece of cartilage, and over that some fibrous tissue. The specimen was of value in that it was complete, because it had suffered no ulceration. Any others which Dr. Rutherford had seen had been allowed to remain till they ulcerated, and thus had indefinite irregularities of their surfaces. The presence of cartilage seemed to bring this case into the same category as that of the more regularly formed exostoses of the long bones, as illustrated in the previous case.

Dr. Barlow spoke of the question of the origin of the exostoses, in the first case, in a particular part of the bone. Dr. Rutherford seemed to think that they arose either from the shaft close to the epiphyseal cartilage or from the epiphyseal cartilage itself. In this ungual case they had the exostosis covered with cartilage, which did not arise from epiphyseal cartilage; clearly its chief attachment was at the distal end of the ungual phalanx, and no epiphyseal cartilage existed there. Similarly, in the first case, several of the exostoses were in situations where there was no epiphyseal cartilage, notably those on the scapular spine and on the central parts of the ribs; he (Dr. Barlow) thought, also, that on the ulna. In the case which he was himself about to show (*cf. infra*), it would be found that the tumours were about the centre of the bones. It might be said that the origin had really been from epiphyseal cartilage, and that in the growth of the bones the exostoses had become removed from their origin. In his own case and in Dr. Rutherford's case, in the instance of the exostosis on the scapular spine (to take an extreme example), this view was not tenable.

Mr. Clark, after referring to the interest of the cases, said that he thought that the word "sport," which Dr. Rutherford had used in connection with the boy's affection, was a most appropriate one. Horticulturists would tell them that, no matter how many theories they might suggest in connection with "sports," they really could not explain them; and so it must be here.

Mr. Clark was sure that some of the exostoses in the first case had not been epiphyseal or connected with the epiphyseal line at all. He was very doubtful if any of them had, unless those at the lower end of the femur, which were more distinctly juxta-epiphyseal. As to any relation in origin to the insertion of tendons, and the drag on the bones by tendons, it might be noticed that some of them were near such insertions; but that did not explain all—*e.g.*, those on the ribs, and that near the end of the shaft of the ulna. His opinion thus was that there was not any theory which would account for the patient's condition. He thought that such cases were sufficiently interesting to have them recorded, and the subject in that way more fully studied. It was possible that they might have to look to the nervous centres, or to some influence affecting the general system, for the true explanation. One could not meantime dogmatise. What was required was observation; general laws would follow when their observations were sufficiently numerous. He might

refer to a skeleton in the museum of the Royal Infirmary which was a striking example of multiple exostoses. Its history was lost in antiquity, but the specimen was certainly worthy of minute inspection.

Dr. Rutherford wished to draw attention, further, to the condition of the knee-joints in his first case. They both presented the appearance of being slack; in the left, one could produce a considerable luxation by flexing, adducting, and outwardly rotating. It seemed as if the ligamentum patellæ was unduly long. In connection with exostoses about the ulna and radius, various cases of luxation of the elbow-joint had been described, and these had been traced to overgrowth or undergrowth of the bone in relation to the exostoses. In the present case he could see no such explanation for the condition of the knee-joints.

III.—PATIENT WITH SARCOMA OF LOWER END OF FEMUR AND MULTIPLE EXOSTOSES.

BY DR. JOHN BARLOW.

Mrs. N., aged 43 years, was admitted into Ward 28 of Royal Infirmary on 15th February, 1895, complaining of a swelling and pain of left knee, of nine months' duration.

Previous History of Swelling.—This knee was hurt when she was 10 years old. At that time it was enlarged and painful, keeping her in bed for three weeks. The pain disappeared, but some swelling remained.

In June of last year, the knee began to increase in size, and was painful, especially on walking or on rising up. In November, the pain was so bad that she had to stay in bed. The pain was worse at night, and is described as of a stabbing character. She does not think that she has lost weight or strength.

Upon admission, the left leg is slightly flexed and everted at the knee. The thigh, in the region of the knee, is greatly enlarged, being nearly 24 inches in circumference, the right thigh at the corresponding point measuring 14½ inches.

The swelling is hot, and enlarged veins are seen. It is soft and elastic. The enlargement of the femur extends apparently to the junction of the middle and lower third, and above this level the thigh measures in circumference 3 inches more than the right thigh.

Movement at the knee-joint is limited in extent, but there is no grating sensation on movement. There is no marked enlargement of the femoral or inguinal glands.

On examination, the bones of upper limbs are found to have in connection with them tumours of bony hardness. In connection with the phalanges there are numerous swellings of this nature—some arising from the shaft, others springing from near the position of the epiphyses. Two of the tumours attract attention—one on the proximal end of first phalanx of middle finger, the size of a bantam's egg, the other in connection with the upper end of radius, and projecting backwards and upwards, and interfering with free movement of elbow-joint. None of these tumours are painful.

The patient states that when very young she had an attack of measles, and soon after this the fingers became distorted and enlarged. Later on, and when, she thinks, she was 7 years old, she suffered from pain in the fingers of a "stunning" character. These recurred from time to time until she was 17 years old, since which time there has been no pain.

The right fore-arm is 2 inches shorter than the left, and the ulna, about 3 inches above the level of the wrist-joint, fuses with the radius and terminates at the point. There is a consequent hollow on inner side of lower third of fore-arm, and increased lateral movement internally at the wrist-joint.

Patient was married seven years ago, and had a child a year later, which died in a few months from "hives." She has menstruated regularly since, and there have been no miscarriages. Up to last June she had good health.

On the 23rd February the urine was noted as containing albumen to the extent of one-eighth, and microscopically there were seen pus corpuscles and abundant squamous epithelial cells. The amount of urea excreted daily was less than 400 grains.

[*Note.*—7th May.—On 5th March amputation at the hip-joint was performed, the loss of blood being small, and the subsequent shock moderate in amount. The patient died thirty-seven days after the operation. The temperature was not high, except during the first week, during which the wound became contaminated with urine, and a localised cellulitis was produced in the stump. During the last three weeks the temperature never exceeded 101° F. The flaps were covered with granulations, but the stage of repair seemed to be arrested at this stage, and symptoms of exhaustion became more marked. The amount of urine and of urea excreted was always sub-normal (roughly, one-half), and the amount of albumen increased. There were no symptoms indicating presence of secondary deposits in internal organs.

Examination of the limb showed the characteristic appearances of a sarcoma, peripheral in origin, from the posterior surface of the lower extremity of the femur. At the upper end of the bone there were numerous small exostoses.

No *post-mortem* examination was permitted.]

Dr. Rutherford said that he had examined this patient about a week or ten days previously, and that at that time he had been inclined to think that the large tumour of the femur was in all probability either a sarcoma which had started in a tumour similar to those on the fore-arm bones and on the phalanges, or that it was one of those cases to which he had alluded in showing his first case (*cf. supra*), and in which there was a very great enlargement of the bursa over an exostosis, with formation of loose bodies, and consequent masking of the original tumour, besides a very great exaggeration of the gravity of its appearance. On thinking over the matter, he was still disposed to say that the latter was a possible view. He had convinced himself at the former examination that there was some fluctuation. He had not troubled the patient to renew the palpation, because the part was now so much more tender and inflamed. He was not prepared at present to dogmatise about the nature of the tumours on the fingers and fore-arm bones. *Dr. Barlow* regarded them as exostoses. That they were not exostoses he (*Dr. Rutherford*) was not disposed to say, but the large one on the left hand was not very like an exostosis, and neither were some of the others on the phalanges. He thought it not unreasonable to suppose that they might be calcified enchondromata rather than primary exostoses. The typical exostosis cartilaginea (as illustrated by the case of the boy whom he had shown) was as a rule pedunculated, and more or less club-shaped. He had seen several removed, and some of them had been very markedly of that form. One might even go beyond the description of "club-shaped," for some of them had been mushroom-shaped, having a flat cartilaginous part on the top with a bony peduncle which, at its attachment to the bone, was very much smaller than where it was growing at the expense of the cartilage. This seemed to *Dr. Rutherford* to suggest that the mother-cartilage, or the epiphysis of the exostosis, had gone on growing at a very appreciable rate—a rate more or less proportionate to the number of years that the patient had survived from its first appearance. He did not think that that character was present in the tumours in *Dr. Barlow's* case. They were smooth, and some of them

were even incorporated in the phalanx, and Dr. Rutherford thought he was right in saying that some involved the whole thickness of the phalanx. Further, as to the expression "ivory exostosis," which Dr. Barlow had used, it must be remembered that however hard the exostoses cartilagineæ were on the surface, they did not get like the true ivory exostosis which, so far as he (Dr. Rutherford) was aware, only occurred on the bones of the skull. Taking the tumour on the left phalanx as an example, he did not think that they could dismiss the idea of calcified enchondromata.

Dr. Barlow asked what about that on the ulna.

Dr. Rutherford was not prepared to say. There might be a different type there.

Dr. Middleton asked if the lungs had been examined for any evidence of sarcomatous disease.

Dr. Barlow replied that they had, but with negative result so far. The condition of the chest he felt to be one of the facts which must be considered in connection with the question of operative interference.

Mr. Clark had seen the case previously, and had then expressed the opinion that the tumours on the fingers had originally been enchondromata. At the former examination, he had called attention to a possible relation between the large tumour on the left knee and the others. The other surgeons present had thought differently, but *Mr. Clark* still maintained that such a relation was quite probable. It was well known that enchondromata were often multiple (as in a case which he had himself shown to one of the Societies), and it was notably the fact that they took two directions of further progress—namely, ossification and sarcomatous development. He thought, accordingly, that the tumour on the left knee in the present case had commenced as an enchondroma, and had undergone sarcomatous change within recent years. It would be noticed in the report that, though no definite tumour was known to exist formerly, some swelling of the knee had been recognised for thirty years. He admitted that this did not clear up the whole difficulty. There was this other point, that they had evidence of arrest of development, of congenital defect, in the condition of the right ulna. All were interested in the question of the origin of sarcomata. Some believed, and others did not, in the embryonic origin of such tumours. The evidence of congenital defect in the present case might help one to understand a sarcomatous development.

As to operative interference, *Mr. Clark* was inclined to agree with the view which *Dr. Rutherford* had expressed at

the former consultation, but which had not been generally adopted, that incision should be made over the tumour of the left knee in order to see what its nature really was. They had agreed, however, that this should not be done unless the operator were prepared to go further if it turned out to be sarcomatous. Dr. Barlow was meantime balancing the evidence as to whether the general condition of the patient would warrant their undertaking the major operation. If he amputated, it would have to be very high up, and even then he might not get healthy tissue. There was also to be remembered the doubt about the condition of the kidneys. A woman of the patient's physique was not a good subject for operation. If any evidence were found of pulmonary involvement, it certainly would be wisest to leave her alone.

Dr. Barlow, in reply, said that when he spoke of "ivory exostosis," he was using a clinical term which had been employed for a long time, and which described the condition in the present case. As to whether the origin of the growths had been enchondromatous or not, he would remark that, so far as he could gather, there were very few exostoses which were bony from the first. Nearly always they began as enchondromata, and became calcified; and when he spoke of exostoses, he did not draw any necessary distinction between ossification and calcification. He used the expression "ivory" because the tumours were hard, and rang on being tapped.

As to the bursal theory, Dr. Barlow could only say that he knew of no bursa, not even an adventitious one, which would give the appearance which was present in this case. The swelling here must go well round and round the limb. He thought it would be injudicious to touch it unless one were prepared to amputate at the hip; and he was forced to think, in that connection, of the patient's chances of recovery from such a serious operation, especially in view of the unsatisfactory condition of the soft parts at the upper part of the thigh. There was also the doubt about the source of the pus which had been noted as present in the urine. If he thought that there was a chance of recovery from amputation, he would not amputate without first making an exploratory incision.

IV.—CASE OF CONGENITAL TUMOUR OF THE NECK.

BY DR. JOHN BARLOW.

Dr. Barlow showed a photograph obtained from this case, and read the following report of the conditions present:—

W. N., aged 35 years, admitted to Ward 27 on 31st January, 1895, complaining of a swelling under the lower jaw, which has been increasing steadily in size for the last thirteen years. There has been no pain. Treatment is desired partly because of deformity present, and partly because of mechanical interference with flexion of head. The tumour is situated in middle line of neck, and is oval in form, with long axis of oval across the neck. It measures 10 inches round the base, 7 inches from side to side, and about 5 inches from above downwards. The skin over tumour is thin and hyperæmic, but movable. The tumour can be moved on the underlying parts. It feels smooth and elastic to the fingers.

The patient states that he had a similar swelling fourteen years ago, which was removed by operation by Dr. Morton. A reference to the Ward Journal shows that he was admitted on the 4th July, 1881, with cystic tumour under the jaw. Before admission the tumour was about the size of the one above described. The patient stated that when he was 9 years old the lump was the size of a marble. The treatment adopted was puncture with trochar and canula, which, the report says, let out a lot of sebaceous matter and pus. He was dismissed "well" on 3rd August, 1881.

On the 6th February I removed the tumour by a T-shaped incision. No difficulty was experienced in separating the skin from the tumour, except over a limited patch, which probably corresponds to the site of the former puncture. The tumour was most adherent in the neighbourhood of the body of the hyoid bone, and to the muscles immediately above that bone. The pockets left by removal of tumour were, on the left side of neck, drained by decalcified chicken-bone tube; on the right side, pads of wood-wool were applied to keep parts in contact, and at this date the healing process is practically complete.

A portion of the cyst-wall and of the atheromatous-looking contents were submitted to examination by Dr. Lindsay Steven, who reports that the cyst-wall was fibrous, and the contents composed of epithelial cells and oily matter, but that he could not make out an epithelial lining continuous with the fibrous capsule.

From the position and clinical history, I regard the tumour as a congenital cyst, of the kind described as atheromatous branchial cyst, due to inclusion of epiblastic tissue during closure of cleft between second and third branchial arches.

Dr. Middleton asked if any cholestearine had been found.

Dr. Burlow had not seen any in the preparations.

Mr. Clark spoke of the probability of the tumour being related to the branchial cleft.

Dr. Barlow desired expression of opinions as to its pathological nature.

Dr. Rutherford asked if the tumour had been easily removed.

Dr. Barlow said that, as the skin had been very thin, great care had been necessary in separating it from the underlying parts. The tumour had been under the platysma. Little difficulty had been experienced in the further dissection until they reached the hyoid bone, and then they had had to proceed cautiously. He had been particularly anxious to remove the growth entire, partly for the sake of the specimen, but also because the history of former recurrence rendered complete enucleation most desirable.

Mr. Clark said that the history showed the necessity for removal. Tapping had evidently been insufficient, because within a year there had been signs of reappearance.

Dr. Rutherford held that the diagnosis given was not absolutely satisfactory. Nothing that they had heard could be regarded as proving that the tumour had been a branchial cyst, or that it was to be called a dermoid of any kind. He thought that it was quite possible that it was not dermoid or branchial. The whole question, so far as they were concerned, must rest on its locality, and on the possible persistence or enlargement of simple wens in that situation. He had never seen a large wen in that situation.

Dr. Barlow pointed out that the patient was still a young man, and that his statement was that at 9 years of age the tumour had been of the size of a marble. This was surely not favourable to the idea of its being a wen.

Dr. Rutherford said that in view of the simple nature of the wall, he would like to have evidence of dermoid tissues before setting down the tumour as a dermoid. If it were called "branchial," he would like to have its relations more exactly stated. Was it common to get branchial cysts in the middle line?

Dr. Barlow had never seen one, but there was no reason why it should not occur.

Dr. Rutherford said that there might be no known reason against it, but he did not think it commonly happened.

Dr. Barlow asked *Dr. Rutherford* what structures he would expect to find in the wall other than fibrous tissue and epidermal cells.

Dr. Rutherford replied that at some part of a true dermoid he would expect glandular structure or hair-follicles.

Dr. Barlow asked as to the structure of the wall of a branchial cyst.

Dr. Rutherford said that the lining membrane described was quite adequate, so far as a branchial cyst was concerned, but that he thought the position of the tumour was against that view.

V.—PATIENT WHO HAD A COMPOUND DISLOCATION OF THE
INTERNAL CUNEIFORM BONE.

BY MR. MAYLARD AND DR. ANDREW.

This patient was shown. Dr. Andrew submitted the following report of the case:—

J. M'C., æt. 2½, was brought to the dispensary of the Victoria Infirmary, on the afternoon of the 26th October last, with the history that his left foot had been run over by the wheel of a heavily laden cart.

On examination it was found that a very extensive laceration of the soft parts had taken place. A large ragged wound was seen extending along inner side of the foot from just below, and in front of, the internal malleolus to the metatarsal bone of the great toe. On drawing apart the edges of this wound almost the entire soft parts of the sole were found to have been separated, remaining connected, however, in front with the bases of the metatarsal bones, and behind with the os calcis; the outer side of the foot was entire.

The upper edge of the wound on the inner side was very much torn, and lying over it was the severed tendon of the extensor hallucis.

Under the flap was found the internal cuneiform bone dislocated upwards, and connected only by shreds of tissue. No trace of the tendons of the tibialis anticus or posticus could be seen. There was very little bleeding; no vessels had to be secured. Under chloroform the wound was thoroughly cleaned and the internal cuneiform replaced, tubes inserted, and loop-stitches placed here and there drawing the edges loosely together.

On the following day the great toe appeared as if it were going to become gangrenous; the edges of the wound showed evidences of sloughing, and behind the smaller toes, on the dorsum of the foot, an œdematous and ecchymosed patch was seen. The foot was steeped for an hour or so in bichloride (1 in 2,000); this was repeated on the two succeeding days. In spite of this an inflammatory zone developed all round the wound, necessitating the removal of the stitches. On the

31st October, four days after the injury, he was again given chloroform with the intention, if necessary, of amputating the foot. The whole surface on the internal aspect of the flap of the sole was found to be gangrenous and smelling badly. It was thought, however, better to wait; pure carbolic acid was freely applied to all the sloughing tissues.

From this time onward the condition of the foot improved, the sloughs slowly separated, the odour disappeared, and healthy granulation tissue began to show underneath.

On the 28th November the case-sheet contains the following note:—"The inside of the foot is contracting, the great toe is being pulled inwards. The sole of the foot is healed."

The contraction on the inner side continued so that the great toe came to be nearly at right angles to the foot; the second toe also deviated in the same direction.

The great toe was amputated on the 19th December. Patient was dismissed well on the 21st January, the contraction of the cicatrix drawing second toe towards inner side.

The point of interest in this case is the dislocation of the internal cuneiform bone. Dislocation of individual tarsal bones, with perhaps the exception of the astragalus, is a very uncommon injury.

In Hamilton's book on *Dislocations and Fractures*, Sir Astley Cooper is reported as having twice seen this bone alone dislocated; in neither case was the injury compound, and in neither was the bone reduced. Villars, Meynier, and Fitz-Gibbon also report cases, in none, however, compound.

Mr. Key, in *Guy's Hospital Reports* for 1836, reports a case of compound dislocation recovering in two months with slight lameness, and Nélaton reports a similar case where he was unable to reduce the bone, and removed it.

Mr. Clark said that dislocations of the individual tarsal bones were recognised as not very common. Of course they were more likely to be compound than simple, and in smashes one found the bones displaced in most peculiar fashion. He had not himself met with an example of the form illustrated by the present case, but he knew from Hamilton's book, which was the standard work on the subject, that it was uncommon. The most curious instance of dislocation of the tarsal bones, which he had himself seen, was one in which the astragalus was turned upside down. The patient had fallen from a height and landed on one foot. The head of the bone was so displaced as to threaten to come out through the skin. The circulation in the foot had been seriously interfered with. The operation performed had been excision of the astragalus.

ABSTRACTS FROM CURRENT MEDICAL
LITERATURE.

NERVOUS DISEASES AND INSANITY.

By DR. R. S. STEWART.

Trephining for Epilepsy. By Hallager (*Archives de Neurologie*, April, 1895).—This is the case of a girl who, at the age of 22 years, was suddenly seized with paresis of the right arm and loss of speech, followed a day after by convulsions, and nine days later by paresis of the right leg. The paralysis and speech affection disappeared in fifteen days, but inability to write remained, and the convulsive seizures continued to recur. These latter were always ushered in by localised spasm of the fore-arm, with a combined movement of flexion of the elbow and elevation of the limb forwards and outwards, after which followed loss of consciousness and general convulsions. Incomplete attacks, without unconsciousness, occasionally occurred. Treatment by bromide and iodide of potassium, continued over a year, failed to effect any change, and progressive intellectual enfeeblement was noted. The diagnosis arrived at was embolism, resulting in the formation of softening or cystic formation, situated in the ascending frontal at the level of the first frontal sulcus. The operation, which fully justified this view, consisted in the evacuation of blood cyst found about 3 millimetres under the surface. The convulsions reappeared a month afterwards, and bromide was recommenced. Three months after there had been no recurrence of fits, and the mental condition had improved. It is recognised that the time is too short to express a positive opinion as to complete recovery.

Transitory Aphasia observed in the Course of Influenzal Pneumonia. By Pailhas (*Archives de Neurologie*, May, 1895).—Cases of pneumonic transitory aphasia have been described by Chantemesse and Monysset. In this instance it occurred on the second day of an attack of influenza complicated with pneumonia, was associated with a degree of agraphia and numbness and tingling in the right arm, was rendered more pronounced by prolonged effort to speak, and persisted until death, which took place on the thirteenth day of the illness.

Chorea rapidly Cured by Electro-Static Baths. By Regnier (*Archives de Neurologie*, May, 1895).—An attack of articular rheumatism occurred at the age of 7, and was complicated with endocarditis. The second occurred two years later, and was followed, after fifteen days, by a severe attack of chorea. Daily electro-static baths of 30 minutes' duration were ordered on the third day of the disease, and continued for three weeks, afterwards being gradually dropped. The effect from the first bath was quite manifest, and each bath was followed by a progressive diminution of the choreic movements, and in two months recovery was complete.

The Spastic and Tabetie Types of General Paralysis. By Stewart (*Journal of Mental Science*, April, 1895).—This paper, read at the 1894 meeting of the British Medical Association, is based on the observation of 317 general paralytics, and its object is to show that in this affection there are two broad varieties, one occurring in association with posterior sclerosis, and constituting 17 per cent of the total cases—the other associated, secondarily point of time, with symptoms pointing to sclerosis of the lateral columns. The spastic variety commences, on the average, at the age of 38, and the period of life at which it most commonly occurs is between 30 and 40; the

maximum number of deaths occurs during the third decade; and, as regards duration, the maximum number has a course of from one to two years. In the tabetic type the average age at commencement is 41; the maximum number occurs in the decade 40 to 50; the greatest number of deaths takes place in the fourth decade; and, as regards duration, the maximum number has a course of from two to three years. Congestive seizures are a more prominent feature of the spastic type, forming the initial feature of the disease in 22 per cent, as against 11 per cent in the tabetic, and occurring in 72 per cent in those which were followed to their termination, as against 65 per cent in the tabetic. The tabetic cases in many instances become complicated during the later stages with symptoms of lateral sclerosis; but, so long as they remain uncomplicated, congestive seizures are the exception rather than the rule. In the spastic type there is a marked preponderance of maniacal states of mind, and in the tabetic of melancholic states. In spite of the shorter duration, the resultant cerebral atrophy is strikingly more pronounced in the spastic type, while the contrary holds as regards the spinal atrophy.

Sporadic Cretinism Treated by Thyroid Extract. By Telford-Smith (*Journal of Mental Science*, May, 1895).—In each of the four cases here described the improvement was well marked. The chief effects of the treatment were rise of temperature almost after the first dose, and gradually approaching the normal as treatment was continued; desquamation of the skin in two or three weeks, with return of perceptible perspiration; subsidence of the myxœdematous condition of the subcutaneous tissues, with general loss of weight; comparatively rapid increase in height, and appearance of previously delayed second dentition; disappearance of marked constipation; improvement of manner and disposition from sluggish sulkiness to lively intelligence and spontaneous activity. Two conditions afford a useful guide in treatment. If the temperature can be kept at about 97.5° to 98° F., and no emaciation is set up, the physiologically useful dose has been gauged. Small doses are recommended at the commencement of treatment—3 grains per day, gradually increased to 5 or more according to the effect produced.

Derby Borough Asylum: Sixth Annual Report.—Dr. Macphail, in commenting on the character of the admissions, points out that the limits of certifiable mental disease are yearly widening to include the most temporary mental aberration in the course of any physical disease, and that the public show increasing confidence in the nursing resources of asylums, and are well satisfied to allow their aged relatives to be nursed there in their second childhood—facts which have to be kept in mind in connection with the question of the alleged large recent increase of insanity. A marked increase of general paralysis is noted. Notwithstanding this, an increased recovery-rate and diminished death-rate are recorded during the year.

Holloway Sanatorium: Ninth Annual Report.—The recovery-rate for 1894 is 66.9 per cent of the admissions, and the death-rate 5.3 per cent of the average number resident. Both compare very favourably with the rates applying to corresponding institutions in England; but as these are largely influenced by the quality of the admissions, possibly a certain allowance should be made if any kind of selection of cases is in force. A detailed account of the case of the patient Weir is given, from which the public may form its own opinion.

A Case of Muscular Atrophy in the Face and One Upper Limb, with Paralysis on One Side of the Face.—The patient, who has no hereditary antecedents of pathological importance, began to suffer at the age of 11 years. He had severe pain after the extraction of a tooth, and his mother observed that his mouth was drawn to one side. About the same time she noticed that his left arm was not quite so large as his right.

But these two symptoms did not come on suddenly, and they were not associated with fever. Patient had repeated attacks of fever in his youth while working at a fort. Three years ago he had a severe attack of fever, which confined him to bed for thirty-two days. The left eyelid was observed to droop after this illness. Four months ago diplopia troubled him for the first time. The reflexes are normal, and there is no sensory disturbance. There is considerable deviation of the face, and also atrophy of the muscles of the left shoulder, thorax, and upper limb. Voluntary movements persist, but are enfeebled. In most of the muscles innervated by the facial nerve Faradic and galvanic irritability are much diminished; but this does not apply to the orbicularis palpebraum, orbicularis oris, or triangularis nasi.

This is plainly a case of muscular atrophy which, beginning in childhood, has affected the face, left upper limb, and left side of the thorax. Its progressive character excludes the diagnosis of infantile paralysis. Neither can it be reckoned to Romberg's type of facial hemiatrophy, because the skeleton is not involved, and there is no cicatricial change in the skin. Atrophy in the face is limited to the domain of the facial nerve, the muscles of mastication being intact. The authors (Marie and Marinesco) have not found any published records of a similar case.—(*La France Médicale*, 1st March, 1895.)—T. K. M.

MEDICINE.

By T. K. MONRO, M.A., M.B.

A Case of Acute Miliary Carcinosis.—Our acquaintance with cancer is so much restricted to the chronic disease that we are apt to forget that it may be associated with feverish attacks, run a rapid course like an acute disease, and prove fatal with cerebral and other grave symptoms in a week or two. The writer (Mégay of Klausenburg) suggests the designation given above, in view of the close resemblance of such cases to acute miliary tuberculosis.

He mentions the case of a woman, aged 54, who was brought into hospital in a state of fever, and died on the following day before any exact diagnosis was arrived at. The autopsy revealed the presence of an old hard scirrhus of the pylorus, but the numerous secondary tumours corresponded in structure to medullary cancer. These were found in the lymph-glands of the neck and abdomen, the serous membranes, and the spleen, liver, and kidneys. Death, therefore, was due not to the primary tumour, but to the numerous metastases, which developed rapidly, and were associated with fever and typhoid symptoms. The cancer-cells were supposed to have reached the blood by penetrating the thin walls of the delicate blood-vessels of the lymphatic glands. Indeed, the writer actually observed a small vessel in a glandular mass in the neck, half-filled with epithelium which had grown into it. The same thing may have happened in a number of places. The resemblance, therefore, between this mode of generalisation of cancer and acute miliary tuberculosis is very close.—(*Deut. Med.-Zeit.*, 8th April, 1895.)

Metastasis in Bone from Cancer of the Thyroid Gland.—Secondary tumours in cases of cancer of this gland are liable to occur in the lungs and in bones. These secondary growths generally resemble in structure the primary tumour; but, besides typical tumour-elements, thyroid glandular tissue is frequently present. This is specially true of adeno-carcinomata. Eiselsberg relates eight illustrative cases:—(1) Adenoma of thyroid, with colloid degeneration—metastasis in parietal bone; (2) adeno-carcinoma of thyroid—metastasis in sternum; (3) adeno-carcinoma—metastasis involving the whole sphenoid bone and the base of the cranium; (4) adeno-carcinoma—metastasis in the parietal eminence; (5) adeno-carcinoma—metastasis in the upper part of the humerus; (6) adeno-carcinoma—metastasis in the lower jaw,

the cervical and mediastinal glands, and the lungs; (7) adeno-carcinoma—metastasis in the frontal and occipital bones, the lung, and the liver; (8) adeno-carcinoma—metastasis in the cranial bones, the ribs, and the humerus.

In five cases, therefore, the bone-metastases were single; in three cases multiple. Pulmonary metastases were diagnosed with certainty in five cases; once there were none; twice they were overlooked. The occurrence of pulmonary metastasis may contra-indicate an operation for a single metastasis in bone, for the growth of an osseous metastasis is very slow, and the primary tumour in the thyroid may be so insignificant as to quite escape notice. Eiselsberg claims that there are some grounds for believing that a bone-metastasis producing colloid material may discharge vicariously the function of the extirpated thyroid gland.—(*Deut. Med.-Zeit.*, 8th April, 1895.)

Alcohol and Tuberculosis.—M. Lancereaux has written an important paper on the comparative effects of different alcoholic drinks, and on their influence in predisposing to phthisis. He finds that particular harm is done in France by certain classes of drinks known as "aperients" and "bitters." These drinks contain essences, and it would appear that excess in the use of them is, in the writer's experience, one of the most important predisposing causes of tuberculosis. Phthisis in the drinker commonly begins at the apex of the lung posteriorly. If the patient has the courage to give up his excesses he has a very fair prospect of recovery; but, unfortunately, this is rarely what happens. In some cases the tuberculosis is general from the very outset, invading the lungs, peritoneum, and meninges simultaneously, and so quickly causing death. This condition is principally met with in porters who frequent the markets, in coopers, and in carters. Alcohols and essences, taken by such persons, diminish organic combustion on the one hand, and are eliminated by the lungs on the other hand, with the result of producing both a general and a local predisposition, which favours the settling of the tubercular bacillus in the pulmonary tissues.

The writer, while far from denying the importance of inspecting articles used as food, and of boiling milk under certain circumstances, declares that such measures are mere trifles in view of the vast good that might be done by an efficient inspection of drinks, and by constant efforts to bring about a diminution in the amount consumed.

The author remarks further on the dire effects produced by absinthe, the use of which has increased very greatly of late years in Paris. Chronic absinthism has become much more common, while alcoholism has been nearly stationary.

M. Lancereaux proceeds: It seemed to me, till quite lately, that the suppression of a certain number of public-houses, and levying an impost on alcoholic drinks, would suffice to arrest the increase of drunkenness; but, since I have come to know better the pernicious effects of those drinks which contain essences, I have been of another opinion. As these drinks are by far the most deadly of all, on account of the essential oils which they contain, the sole means of avoiding the danger is to forbid the addition of such oils to alcohol, if not, indeed, to forbid their consumption, or, if it be preferred, their manufacture.

To the assertion that measures of this kind would suppress industries which enrich the country, M. Lancereaux replies that these industries do not enrich the country. On the contrary, they impoverish the country and tend to ruin it, and they are responsible very largely for the diminution of the population. The Government of Roumania lately refused to allow an establishment to be erected for the preparation of "aperients" from absinthe, and the Republic of Ecuador quite recently forbade the importation of such drink into its territory. M. Lancereaux thinks that France ought to follow the good example thus set by other nations, and forbid altogether the use of drinks containing essential oils. Some of his other proposals for the promotion of temperance are worthy of attention.—(*La France Médicale*, 8th March, 1895.)

Hydatid Cyst of the Liver Infected by the Pneumococcus.

—Galliard mentions the case of a patient under his charge who was admitted with symptoms pointing to intestinal obstruction. These symptoms soon passed off, but the liver remained large. An exploratory puncture yielded pus without admixture of bile; and pneumococci, without other organisms, were found in the pus. The cyst, which was produced by hydatids, was incised, and the patient recovered.—(*Gaz. Méd. de Paris*, 27th April, 1895.)

General Infection by the Coli-Bacillus in the Course of Influenza.

—Siredey relates the case of a man, æt. 29, who, after suffering for fifteen days from influenza, was admitted with severe general symptoms, including high temperature and very marked albuminuria, the general aspect of the case being such as to suggest that the patient had influenza complicated with enteric fever. There were, however, no rose-spots, diarrhœa, or abdominal distension. After two or three days the signs of uræmia set in, together with an increase in the amount of albumen in the urine. The urine was collected aseptically, and was found to contain a great number of coli-bacilli. Puncture of the spleen furnished a pure cultivation of the same form of organism, and this was likewise found to be present in an effusion in the left side of the chest.

The patient died two days later. There was no lesion of the intestine. Both kidneys were in a condition of intense inflammation, and the left contained white infarcts, in which the bacillus referred to could be again found.—(*Gaz. Méd. de Paris*, 27th April, 1895.)

Abnormalities in the Chemistry of Gastric Digestion in Cases of Chlorosis.

—Hayem examined 72 patients (67 women and 5 men). He found excess of pepsin in the contents of the stomach, 36 times; hyper-acidity, 6 times; deficiency of pepsin, 23 times; complete absence of pepsin in no case; normal chemical conditions in 2 instances. In 3 cases the deviation from the normal was insignificant, although the dyspeptic symptoms were marked. In 36 cases there was distinct acid fermentation; in 34 cases there was none.

These figures help to explain the great frequency of dyspepsia in chlorosis. A closer connexion between the intensity of chlorosis and that of the associated dyspepsia cannot be demonstrated, for one often sees severe chlorosis with but slight dyspeptic symptoms, and conversely. Hayem considers the common method of feeding chlorotic patients who have dyspeptic symptoms with iron, arsenic, quinine, and other irritating substances, as altogether hurtful, and calculated to produce serious disturbances in the stomach, and in particular to cause gastric ulcer. Treatment ought to begin, as in other forms of dyspepsia, with simple, properly regulated diet.—(*Deut. Med. Zeit.*, 4th March, 1895.)

Recovery from Tubercular Meningitis.

—The question of recovery in tubercular meningitis has hitherto been obscured by doubt as to the diagnosis. This was not so in a case reported by Freyhan, who made an exploratory puncture of the spinal canal in the lumbar region. About 60 cubic centimetres of slightly turbid, pale, serous fluid spurted out. In the sediment, pus corpuscles and tubercle bacilli were found. The patient improved rapidly, and, in three weeks after the puncture, was able to rise from bed. Recovery can therefore not be looked on as a reliable sign in distinguishing between various forms of meningitis. Incidentally the case raises the question of the therapeutic value of puncture in meningitis.—(*Amer. Jour. Med. Sciences*, April, 1895.)

Secondary Infection in Diphtheria.

—It is often supposed that diphtheria, with a severe local lesion and severe general symptoms, is due to a mixed infection by diphtheria-bacilli and by streptococci. Genersisch, who examined the blood and internal organs, soon after death, in twenty-five cases

of this kind, found that there is not necessarily a mixed infection. In cases with the most pronounced septic symptoms, streptococci may be absent from internal organs; while, on the other hand, these organisms may be found in cases free throughout from septic symptoms. The author, therefore, thinks that diphtheria-bacilli are able by themselves to produce septic symptoms.

Reiche, in a similar research, found both streptococci and staphylococci in 64 per cent of forty-two fatal cases; streptococci only, in 45 per cent: diphtheria-bacilli, twice. Secondary infection by streptococci was found in a case that proved fatal on the second day of illness. In two other cases, secondary infection was present on the third and the fourth day. The author looks on the possibility of the early occurrence of this serious complication as an important limitation of the value of the present antitoxic treatment.—(*Amer. Jour. Med. Sciences*, April, 1895.)

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

Extirpation of the Larynx, Superior Part of the Œsophagus, and the Inferior Part of the Pharynx.—Dr. Pean records a case of a man, æt. 50, who had epithelioma of the larynx. The larynx was removed with the hyoid bone, in addition to the inferior part of the pharynx and superior part of the Œsophagus, along with a portion of the carotid artery after ligature. The patient has made a good recovery, the Œsophageal opening being 2 centimetres above the tracheal orifice. Dr. Pean has made an apparatus by means of which the patient may be fed, and air admitted to the respiratory tract at the same time.—(*Bull. Acad. de Méd. Paris*, 22nd January, 1895.)

Laryngeal Tuberculosis.—At the last meeting of the New York Academy of Medicine (section of Laryngology and Rhinology), Dr. Walter F. Chapell gave a paper in which he again advocates the use of creosote, locally, in tubercular laryngitis. His formula is as follows:—

Creosote,	.	.	.	.	.	.	.	1 to 2 drs.
Ol. ricin.,	.	.	.	.	.	.	.	3 drs.
Ol. gaultheriæ,	.	.	.	.	.	.	.	3 drs.
Ol. hydrocarbon,	.	.	.	.	.	.	.	1 dr.
Menthol,	.	.	.	.	.	.	.	10 gra.

Before applying this, the larynx is thoroughly cleansed, and a 10 per cent solution of cocaine applied. In the ulcerative stages, he recommends a spray of a solution of creosote, 1 drachm to the ounce, and he also gives submucous injections. To facilitate this method, he has devised an automatic laryngeal syringe.—(*Journal of Laryngology*, May, 1895.)

Antitoxin Treatment of Diphtheria.—Mr. Lennox Browne writes a paper upon this new method of treatment, based upon 100 cases treated by the serum from the first of its official adoption in the wards of a Metropolitan fever hospital, where he had taken advantage of the regulations afforded by the Asylums' Board to follow the course and treatment of this and other infectious diseases. He gives various tables bearing upon the things of interest, and pays particular attention to the sequela. His conclusions are not favourable to the use of this drug. He says:—"When drawing attention at a meeting of the Clinical Society, last December, to what cannot but be considered as an increase, under the use of serum, of the most grave complications of diphtheria—viz., anuria, nephritis, and cardiac failure, I took occasion to express a hope that further experience might prove that the disadvantages of serum would be more than outweighed by its benefits. I deeply regret to be obliged to record facts which, if confirmed—and they are easily capable of

being checked by parallel observations of others who may elect to make use of the opportunities which I have embraced—cannot fail to carry a contrary conviction. Whether the efficacy of the new treatment be finally accepted or disproved, I shall feel that I have accomplished a plain duty in reporting the foregoing facts as they have presented themselves during some months of close observation in an institution which has been distinguished by its low diphtheria mortality for some years past. While writing this article, I observe that Dr. Winter, of New York, has arrived at similar conclusions to myself on almost all the points here considered.”—(*Journal of Laryngology*, May, 1895.)

The literature bearing upon the disadvantages of antitoxin is increasing. Dr. Kraske notes erythema and nephritis occasionally, and he believes them to be caused by the treatment (Verein Freiburger Aerzte, meeting, 30th October, 1894); Dr. Bäumler also notes albuminuria and erythemata (Verein Freiburger Aerzte, meeting, 30th October, 1894); Drs. Lebreton and Magdelaine also note the same sequelæ (*Bull. Soc. Méd. des Hôpitaux*, 7th February, 1895); Dr. Perregaux, in a study of 240 cases of diphtheria treated by blood serum, relates an unusual number of complications—61 cases of exanthema, 21 of rheumatismal pains or arthritis, 17 cases of soft palate paralysis—but these complications have been, for the most part, noted by the children's parents, and not examined by the author. One case is interesting; in a little girl, 4 years of age, the injection of serum determined severe and repeated attacks of urticaria, with vomitings, oliguria, and collapse (*Journal of Laryngology*, April, 1895); Dr. Hagenbach has observed the case of a child where petechiæ and gastro-enteritis were diagnosed at the *post-mortem* examination. He believed them to be due to the serum treatment (*Correspl. Schweizer Aerzte*, 1895, No. 1); Dr. Cugrun also records two cases of toxic effects of blood serum, one in his assistant (*Deutsche Med. Woch.*, 1894, No. 48).

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